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Original Articles

SOME THERAPEUTIC ADAPTATIONS OF CECOSTOMY AND APPENDICOSTOMY

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My own experience for some time and that of other surgeons for longer periods indicate not only that ostiomatic operations on the intestinum cecum and the appendix vermiformis have already attained a considerable range of application, but that they are destined to be even more extensively employed especially as adjuncts of medical treatment in several very important diseased conditions. The application of these strictly surgical measures, now being undertaken with increasing frequency at the instance of strictly medical men for the purpose of assisting them in the treatment of hitherto intractable cases, seems, indeed, to be founded on very logical considerations. The practice is based primarily on a recognition of the fact that there are certain conditions which are strictly local to the colon and which are consequently better treated by measures addressed exclusive to the colon—the word "colon" being here employed to designate the whole of the large bowel from the ileocecal juncture to the rectum. This conception takes into account two additional facts of great practical importance, viz.: first, that the attempt to medicate the colon locally by way of the rectum is painful, tedious and generally unsatisfactory; and, second, that the attempt to medicate the colon by way of the stomach is fraught with uncertainties due (a) to unknown and undeterminable chemical change of medicaments in the stomach and upper intestines; (b) to resulting interference with digestion, both gastric and intestinal, and (c) to consequent impairment of the general health. It is recognized, furthermore, that, by direct access through the cecum by an entirely safe operation, not only are these objections entirely obviated, but that certain signal advantages are obtained. Among these advantages may be mentioned (a) the hygienic control of the large intestine; (b) the ability to apply treatment, medicinal, bacterial or dietetic, directly to the colon; and (c), by absorption therefrom, to influence the general system without reference to the condition of the stomach or of the upper intestine.

SOME ANATOMIC FACTS

But before I take up the various therapeutic indications for which this relatively new surgical measure is being employed, I ask attention to a few anatomic facts that have a particular bearing on the choice of operation —that is, as between cecostomy and appendicostomy. Thus it is a matter of some significance (a) that the large pouch or convolution of the intestinum cecum is the part that lies in direct contact with the anterior abdominal wall; that consequently (b) it is from an inch to two inches nearer the parietal peritoneum than is the base of the mesoappendix, and (c) that it occupies a position directly opposite the valvula coli—a matter that I shall show to be of practical importance. Relative to the appendix vermiformis it is of some importance to remember (a) that its lumen is of variable diameter and, in certain cases, is entirely obliterated; (b) that the sickle-shaped fold of mucous membrane, the valvula processus vermiformis, at the cecal orifice of the appendix is sometimes absent; (c) that the meso-appendix is of variable length and is relatively inelastic; and (d) that the walls of the appendix proper are of variable thickness and are but poorly supplied with elastic tissue. Then, too, it should be kept in mind that the autonomic algesic areas of the cecum and appendix vermiformis correspond to the distribution of the tenth dorsal nerve to the obliquus internus, obliquus externis and transversus abdominis muscles and, in exceptional cases, to the distribution of the iliohypogastricus nerve in the groin—all, of course, on the right side.

THE CHOICE OF OPERATION

I have mentioned these usually disregarded facts, because they have more or less bearing, first, on certain phenomena both preceding the following operation; and, second, on the choice of operation. With respect to the choice of operation I fear that I shall seem a trifle heterodox when I state that, all things being equal, I prefer the older procedure of cecostomy to the newer one of appendicostomy. If my colloquialism of "all things being equal" shall be interpreted to mean the average normal conformation of, respectively, the cecum and the appendix and the absence of pathologic states that make the appendix the logical avenue of ingress—and I confess I do not know which pathologic states should be so regarded—then I believe the force of the anatomic features to which I have called attention will incline to a decision on the side of cecostomy. Thus (a) the proximity of the presenting pouch of the cecum to the parietal peritoneum permits of its fixation in the operation wound practically *in situ naturalis;* (b) it can be utilized for either a small opening or a larger one as may be indicated; (c) it permits an opening through which a catheter may be passed at any time through the valvula coli into the small intestine; (d) it is free from undue tension after fixation, thus avoiding the possibility of breaking up the anchorage prematurely or causing painful adhesions following the operation; and (e), if properly managed, it is no more liable to be the source of fecal extravasation or the avenue for bacterial infection than is the appendix.

On the other hand, the remoteness of the appendiceal base (a) makes its fixation not infrequently a source of painful tension, which with (b) the pressure of its walls

by a catheter causes (c) the whole appendix, relied on as a "tube," to perish—as a matter of fact the majority of appendices do perish within a few days after operation, leaving (d) the remaining condition one of cecostomy with an opening at an undesirable point; (e) the adhesions resulting from appendiceal implantation are, indeed, frequently very painful owing to the constant traction, thus making a secondary operation necessary. There is likewise a tendency to induce (f) closure of the fistula earlier than may be desired—a natural consequence of the undue traction to which I have alluded.

The relation of both the cecum and the appendix to the autonomic nervous system has been demonstrated by Langley. Through the dorsolumbar division of this system, hyperalgesias are given definite and recognizable expression in the abdominal wall. In this way we are enabled to reduce conditions involving these structures to a more definite basis for diagnosis and to control the pain originating in them, either before or after operation, without overwhelming the sensorium with powerful narcotics. And, now, having said this much by way of introduction, permit me to pass to the application of my observations to the following conditions:

IN AMEBIC DYSENTERY

The necessity for bringing the entire colon within the range of local medication, and the painful difficulty if not actual futility of doing so by injections through the rectum in the majority of cases of amebic dysentery, was the indication that first prompted the opening of the cecum as an elective operation in the otherwise medicinal treatment of this disease. The names of Skene Keith, White[1] and Murray are associated with the earliest development of this practice, which dates back only to 1895. Since that time the operation of cecostomy has been done for this purpose many hundreds of times, especially in the tropical countries in which the disease is prevalent. It has also been employed by John Bell[2] at the Government Civil Hospital, Hong Kong, for the treatment of dysentery caused by another but unnamed parasite peculiar to New Guiana. It was in a case of dysentery of possible amebic variety that prompted Weir[3] in 1901 to attempt a cecostomy when, according to his own account, "as the cecum was exposed the appendix rose so naturally that I determined to employ it to make the desired fistula." This was the beginning of appendicostomy, subsequently so called by Willy Meyer[4] of New York. The case did not prove to be amebic, but one of chronic mucous colitis, which was cured by the subsequent medication applied through the appendiceal tube.[3] The results achieved by this method of treatment in the strictly amebic variety of the disease, especially when of long standing, stamps it as the treatment of choice for a malady that too frequently defies all strictly medicinal resources.

CHRONIC CATARRHAL OR MUCOUS COLITIS

The natural history of chronic catarrhal or mucous colitis and its resistance to all other forms of treatment and the comparative uniformity with which it yields to colonic lavage when applied and kept up through the cecum for periods varying from several weeks to several months, points to it as the one disease occurring in our climate that logically demands this form of intervention, especially in cases that have defied other treatments. This holds true whether the disease is simple or ulcerative. Some of the most satisfactory results have, indeed, been realized in cases such as one that recently occurred in my own practice, in which large mucous casts were shed and in which on examination by the sigmoidoscope the whole surface of the descending colon and of the sigmoid seemed to be granular. Keetley[6] reports a successful case in which no evidence of disease could be seen through the sigmoidoscope, but in which pain was experienced and mucous casts were shed from a localization of the disease evidently farther up than the splenic flexure of the colon. The value of the surgical treatment as compared with the former routine medical and dietetic treatment in the ulcerative variety of the disease is strikingly shown by two very contrasting reports. Murrell reported five cases of ulcerative colitis with four deaths and an average duration of ten months under polymedication. Holton C. Curl,[7] quoted by Keetley, reported 11 cases with 8 recoveries and 3 deaths (1 from chronic nephritis and the other patient moribund at time of operation), the average duration being much less than Murrell's cases, all having been treated by lavage through the cecum.

Keetley himself reports ten cases with nine cures. My own experience has been limited to 4 cases with 3 cures—the fourth patient having voluntarily discontinued the treatment before results were realized. I have not had time to collect the statistics of the operation in these cases at the hands of representative operators, but from other data at hand I am sure that the figures given are fairly representative of the whole. There ought to be no primary deaths from this operation in favorable cases, and I have seen no record of fatality attributable to it. I wish, however, to be emphatic that the operation is not one to be carelessly undertaken, or in other than the best aseptic surgical surroundings.

CHRONIC CONSTIPATION

Constipation, especially of the atonic type and not complicated with enteroptosis, has yielded excellent results to colonic lavage through cecal irrigation. I may be pardoned if I refer briefly to a typical case in my own practice. A woman, age 42, was sent to the Good Samaritan Annex in April, 1909, with symptoms of intestinal obstruction. She gave a history of constipation extending over nearly her whole lifetime, the intervals between spontaneous defecations being sometimes as long as twelve days. The sigmoid was heavily laden, but the unloading of it by enemas and instrumental means did not relieve the symptoms of obstructions. I accordingly did an exploratory incision and found another focus of fetal accumulation—a virtual impaction—in the transverse colon near the splenic flexure. This was moved on into the descending colon by manual manipulation. Scybalous deposits could be felt in practically every convolution of the intestine. I thereupon opened the cecum and began the infusion of a very weak solvent and laxative solution, consisting of one ounce of magnesium sulphate to one gallon of water at 105 F. This was very slowly infused at intervals of every six hours until by the end of the second day the incredible amount of fecal discharge indicated that the colon had been thoroughly unloaded. The treatment was then continued by flushing the colon once daily with hot normal salt solution, the heat acting as a stimulus to provoke vigorous contractions of the bowel. This was

1. White, W. Hale: Lancet, London, March 2 1895, p. 537.
2. Bell, John: Lancet, London, Jan. 16, 1909.
3. Weir, Robert F.: Med. Rec., New York, Aug. 9, 1902.
4. Meyer, Willy: Med. News, Aug. 26, 1905.
6. Keetley, C. B.: Brit. Med. Jour., Oct. 7, 1905.
7. Curl, Holton C.: Ann. Surg., 1906, p. 543.

the central feature of a more comprehensive treatment, chiefly dietetic, that was continued for the next two months. The patient, with the tube *in situ*, went about her usual tasks after the second week following the operation. It was finally removed after seven weeks. The fistula closed spontaneously. Reports by other operators, notably Keetley,[6] indicate not only that my experience is not unique, but that the treatment should be one of choice in all cases of chronic constipation due to atony and not complicated with coloptosis and in which other treatment has failed to bring permanent relief.

ACUTE SEPTIC PERITONITIS

The adaptation of a cecal opening for postoperative treatment of acute septic peritonitis is accomplished by the method that I have termed "coloclysis" and is illustrated by two cases that occured in my service in the Cincinnati Hospital in May of this year, and recently reported to the Cincinnati Obstetrical Society. One patient, referred to the service by my colleague, Dr. E. W. Mitchell, was admitted five days after evident rupture of a pus tube, with temperature 103.5, pulse 130, respiration 26, general tympanites, white count 17,000. She was operated on immediately by incision on the right side, and a leaking pus tube was removed, as was the appendix vermiformis. The other tube was not involved. The patient required an intravenous salt infusion during the course of the operation, which I concluded by fixing the cecum in the incision, opening it and in the opening snugly adjusting a large-sized catheter. The patient was hurriedly returned to bed, a thick but short rectal tube was inserted and the cecal tube was attached to a reservoir of water at 105 F. In this way the colon was speedily filled, becoming in effect a hot-water bottle on the inside of the abdomen. As soon as reaction had been thus promptly induced and the colon had been thoroughly washed out, the treatment was kept up by the continuous infusion of normal salt solution through the cecal tube by the drop method. Later the patient was nourished through the tube. She made a prompt recovery. A second case occurred on the same service the week following and in all essential particulars as to the condition, operation and results was sufficiently like the preceding one to make a longer reference unnecessary in this connection.

The eligibility of coloclysis as compared with rectoclysis is, I believe, apparent. I may, however, emphasize the following points: 1. Coloclysis permits the immediate application of heat on the inside of the abdomen precisely at the place and at the time that it is most needed. 2. It at the same time thoroughly washes out the colon, thus removing not only the fecal content but the toxins with which it is laden. 2. It permits the immediate and indefinitely sustained infusion of normal saline solution into the colon at a point whence it cannot be expelled, voluntarily or involuntarily, by the patient and whence it must traverse the entire absorbent area by which can be and, in my experience, uniformly is taken up before it reaches the anus. 4. It permits the nourishment of the patient by the administration of liquid nutritives by the same method, under precisely the same conditions, and entirely independent of the tolerance of the rectum or the state of the stomach. 5. It makes possible the catheterization of the small intestine through the valvula coli and the consequent flushing of the upper bowel when necessary for the relief of either tympany or volvulus occurring in that division following operations.

INTUSSUSCEPTION

The association of ideas prompts me next to mention the eligibility of ostiomatic operations on the cecum in cases of intussusception. That this is the correct form of intervention in many, if not a majority, of these cases seems to be indicated by the phenomenal experience of Mr. Charles Clubbe,[8] of Melbourne, in 144 operations performed in fourteen years. In the majority of the cases the trouble began in the ileocecal connection. The beneficial influence of the direct application of heat to a bowel wall that is injured on both its mucous and serous surfaces and that may be near the perishing point from long interference with its circulation is too obvious to require discussion. It is known, furthermore, that there is a tendency to early if not immediate recurrence in these cases and this tendency, it would seem, can be materially controlled by irrigating the cecum at will with considerable volumes of water. This contention has been resisted by Mr. Cardwine.[9] As his objection is based on a single case of recurrence six months after the operation and presumably almost as long after the closure of the appendiceal fistula, I cannot concede that his point is well taken, except in so far as it shows that fixation of the cecum is not a guarantee against recurrence of the intussusception at some more or less remote period. On the other hand, that the tendency of such an anchorage of the cecum, in the event of recurrence, is to reduce the invagination to the minimum and to keep the trouble in the right lower quadrant where it can be more easily reached is certainly a fair deduction from the plain principles of physics that are involved. This is, furthermore, confirmed by the fact that the cases so far treated by this method point to its high efficiency.

DEFECTIVE FLORA OF THE COLON

The condition of defective flora of the colon is here specified because it is believed, first, that there is an approximately normal flora of the colon and, second, that bacterial deficiencies in the colon are sometimes responsible for the impairment of its functions. This was shown in a case in which I did an appendicostomy in January, 1909,[10] and in which the study of the flora of the colon was begun by Dr. W. H. Strietmann of the bacteriologic department of the University of Cincinnati. Standardization bouillon and agar-agar were used and inoculations were made from the feces, both through the wound in the cecum and as they were discharged by the rectum. After the cultures were incubated plates were poured. These observations showed no anaerobes, while the plates revealed only a pure culture of a bacillus with rounded ends, non-motile, which produced acid and gas and coagulated milk and was probably *Bacillus lactis aerogenes*.

Ten days later it was found that one of the plates revealed a single colony of *B. coli communis*. Later cultures modified this finding but slightly. Those from February 3 to 6 showed greenish coloration in the bouillon, while the hanging-drop revealed a motile bacillus and a non-motile one of different size. Agar plates showed the same green color and this same bacterium in Gram-positive. It was probably *B. pyocyaneus*, which may have reached the colon through the appendicostomy wound.

8. Clubbe, Charles: Brit. Med. Jour., June 15, 1907.
9. Cardwine, S.: Brit. Med. Jour., Jan. 16, 1909.
10. Reed, Charles A. L.: Direct Bacterial Treatment of the Colon through the Vermiform Appendix, THE JOURNAL A. M. A., Feb. 20, 1909, lii, 636.

These revelations, indicating the practically complete absence of the usual flora of the colon, suggested a change of treatment. Milk cultures of the *B. lactis aerogenes, B. bulgaricus* and the *Streptococcus lacticus* were accordingly thrown through the tube directly into the colon. This on two occasions was fortified with the *Saccharomyces cerevisiæ*. The trend of the case was in the direction of a more normal average flora according to the standard established by Herter, when the patient discontinued the treatment. I urge these observations as suggestions for a further trial by other operators.

AUTOINTOXICATION OF INTESTINAL ORIGIN

The series of facts established by Herter, namely, first, that oxygen exists only in the small intestines; second, that bacteria in the large intestines must, therefore, be anaerobic; third, that these anaerobes elaborate a toxin, and, fourth, that this toxin is absorbed from the colon into the system, is a logical explanation of many abnormal conditions affecting the general system.[11] Hollis, Ditmar and Burch,[12] accepting this theory of causation of pernicious anemia, have successfully treated that disease by colonic lavage through the cecum. Laplace[13] has reported cure in a case of idiopathic epilepsy that had existed from childhood in a patient of 23 and that had developed into daily seizures of great severity. The patient had no seizure after the first day following operation for the establishment of lavage through the cecum. The irrigations were continued for ten months. Armstrong has reported[14] the successful treatment of rheumatoid arthritis by the application of the same principle. Bennett,[15] Ewart[16] and Maunsell[16] have called attention to the advantage in dealing in this way with the toxins elaborated in the course of enteric fever. Dr. R. W. Thomas,[17] of the Cincinnati Hospital, to whom I am indebted for much research on this question, has developed the physics involved in the application of this method to the irrigation of the small intestines in typhoid.[18]

CONCLUSION

I wish in conclusion to emphasize a few facts which, I believe, have become apparent from this brief survey[19] of an extensive subject as follows:

1. The establishment of colonic irrigation through the cecum, whether by cecostomy or appendicostomy, is a procedure which, when properly done under safe surroundings, is attended with the minimum of surgical risk.[20]

2. The application of the operation as an adjunct of medical treatment, under the conditions indicated, is based on the principle of direct treatment of the colon for conditions that are local to the colon.

3. The operations of (a) coloclysis in septic peritonitis; cecal access to the colon (b) for purposes of nutrition following operation, (c) for irrigation and medication in amebic dysentery, (d) for chronic mucous colitis and (e) for other conditions of the mucosa of the colon not amenable to other treatment, stand on a basis of logical and clinically demonstrated value.

4. The treatment of various toxemias due to autointoxication of intestinal origin offer a field for the legitimate trial of ostiomatic operation on the cecum as a means of bringing the colon under control and eliminating its toxic content.

5. The results so far realized justify the continued use of the operation and the more extended application of the principle that it embodies.

60 The Groton.

11. Dr. J. M. T. Finney, Baltimore, in the discussion of this paper, urged that this method of treatment deserved more serious consideration as the treatment of election in cases of neurasthenia dependent, of course, on auto-intoxication of intestinal origin, and alluded to some successful experiences at his own hands.

12. Burch, Lucius E.: Appendicostomy in Pernicious Anemia, THE JOURNAL A. M. A., March 13, 1909, lii, 888.

13. Laplace, Ernest: Preliminary Report of the Treatment of Idiopathic Epilepsy by Appendicostomy for Colonic Irrigation, THE JOURNAL A. M. A., June 2, 1906, xlvi, 1678.

14. Armstong, W.: Lancet, London, Feb. 13, 1909.

15. Bennett, Sir W. H.: Lancet, London, Feb. 17, 1906, p. 419.

16. Ewart, William: Lancet, London, May 12, 1906.

17. Personal letter to the author.

18. Dr. W. M. Polk, New York, in the discussion of this method as applied to the treatment of "typhoid reservoirs," i. e., persons who having had typhoid fever and having thus become immune and in whom the typhoid bacillus has become a permanent feature of their intestinal flora, continue to disseminate the disease through their dejecta. He instanced "Typhoid Mary," a somewhat notorious example of this form of pestilential center, to whom many cases of typhoid had been traced, and who had finally been quarantined for the protection of the community.

19. Additional contributions to which, in a general way, I am indebted for my conclusions on this subject, are:
Allen, R. W.: Brit. Med. Jour., Nov. 28, 1908.
Barry, C. C.: Indian Med. Gazette, June, 1908.
Bolton, Percy R.: Ann. Surg., May, 1901.
Bushnell, F.: Brit. Med. Jour., Nov. 28, 1908.
Dawbarn, Robert H. M.: Ann. Surg., 1903, p. 613.
Dawson, J. B.: Brit. Med. Jour., Jan. 9, 1909.
Gant, S.: New York Med. Jour., Sept. 8, 1906.
Glover, S. G.: Lancet, London, Jan. 9, 1909.
Gray, H. M. W.: Brit. Med. Jour., Mach 3, 1906, p. 596.
Gray, Oscar: Tr. Ark. State Med. Assn., 1908.
Pottenger, J. A.: Lancet, London, Dec. 28, 1907.
Stritton, J. L.: Lancet, London, March 14, 1908.
Willis, W. Morley: Lancet, London, April 28, 1906.
Tuttle, James P.: Appendicostomy, THE JOURNAL A. M. A., Aug. 11, 1906, xlvii, 426.

20. Dr. G. S. Hanes, in discussing this paper, stated that he had treated many cases of amebic dysentery by irrigating the colon through the rectum but that he had been unable to do so satisfactorily without opening the cecum—I think by appendicostomy—for the purpose of permitting the displacement of the gas always present in the colon.

THE VALUE OF BLOOD-CULTURES IN THE DIAGNOSIS OF TYPHOID FEVER*

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The aspect of typhoid fever which has aroused most interest within the past few years is the presence of the bacillus in the blood. Although it had not infrequently been recovered, the impression was general, until five or six years ago, that the typhoid bacillus rarely invaded the circulating blood. In an exhaustive review of the bacteriology of the blood in 1903, Rosenberger[1] showed that this view must be modified. He collected the records of all the examinations to date, numbering 518, in which the bacillus was recovered 419 times. Although it was thus proved that invasion of the blood-stream is frequent, the belief remained that in typhoid, as in diphtheria, bacteriemia is a mere incident of the infection and by no means requisite to the production of the clinical picture.

In 1907 Coleman and Buxton[2] published an analysis of 1,602 examinations, including 123 of their own, of which 75 per cent. were positive. These were made at all stages of the disease and by different methods. That the number of positive results by no means represents the true frequency with which the bacillus is present in the blood is shown by the higher percentages of many of the workers, some finding the bacillus in every case examined. Coleman and Buxton conclude that "the typhoid bacillus is present in the blood in every case of typhoid fever, and that failure to recover it is due to error of technic," and they advance the theory

* Read before the Medical Society of the City and County of Denver, Oct. 19, 1909.

1. Rosenberger: Am. Jour. Med. Sc., 1903, cxxvi, 234.
2. Coleman and Buxton: Am. Jour. Med. Sc., 1907, cxxxiii, 896

that the disease is "caused by destruction of vast numbers of bacilli in the blood, with liberation of their endotoxins and the consequent reaction on the part of the host. Where the endotoxins are liberated elsewhere in the body, e. g., in abscesses, the symptomatology is not that of typhoid fever."

During these purely scientific studies of the bacteriemia of typhoid it became evident that blood-cultures might be turned to practical account in clinical work. If, as seems probable, the presence and destruction of bacilli in the blood are the essential factors in the causation of the disease, a bacteriologic examination of the blood is a rational procedure and should offer a means of making an absolute diagnosis, being limited only by insurmountable difficulties in technic. If, on the other hand, the bacteriemia is a mere incident of the infection, more or less accidental even though frequent, the method is an empirical one, and its value can be determined from the records of a considerable number of cases. Nearly all the work in the past few years has, accordingly, been directed to these practical ends: (1) simplification of technic, so that the method might be available for routine work; and (2) determination of its value and limitations when so applied. Results attained in clinical work, where simple methods and quick returns are imperative, would presumably be less reliable than those reached in research with elaborate and time-consuming methods.

The greatest advance in technic was the introduction by Conradi,[3] Kayser[4] and others of the bile culture media. The older cumbersome and time-consuming methods which constituted the chief bar to the general use of blood-cultures were done away with, and the method at once became available for clinical work. Further advances have been along the line of showing how easily the work can be done, as, for example, that excellent results can be had with blood from a simple puncture of the skin like that required for a blood-count.

In discussing the practical value and limitations of the method, a number of points must be considered: the frequency of positive results and the stage of the disease in which they are obtained; the value of the method compared with the Widal agglutination test; the time required; and certain details of the technic.

I. FREQUENCY OF POSITIVE RESULTS

The 1,602 examinations yielding 75 per cent. positive results, which were collected by Coleman and Buxton, have already been mentioned. These authors state that they themselves have recovered the bacillus from all of the 24 cases examined since their adoption of the bile medium. Epstein,[5] using various media, obtained positive results in 70.5 per cent. of 122 examinations, but mentions that more of his cases were studied late in the disease than has been the case with other workers. Joslin and Overlander[6] reported 30 examinations, of which 70 per cent. were positive. Very recently Lyons[7] has recorded 20 examinations, 90 per cent. of which were positive. The total frequency of positive results is thus about 75 per cent.; but this by no means represents the value of the blood-culture in diagnosis. The important fact is that the highest percentages appear early in the disease, when other methods of diagnosis are least reliable. Thus, Coleman and Buxton's collected cases gave 89 per cent. positive in the first week; 73 per cent. in the second; 60 per cent. in the third; 39 per cent. in the fourth; and 26 per cent. after the fourth. Epstein recovered the bacillus from 7 out of 8 cases in the first week; 39 of 44 cases in the second; 25 of 42 cases in the third; and 8 of 15 cases in the fourth. In 23 relapses, he recovered the bacillus 16 times. Joslin and Overlander's cases are classified as follows: first week, 5 cases, all positive; second week, 19 cases, 11 positive; third week, 2 cases, both positive; later, 4 cases, 3 positive, including two in relapse, both positive. Of Lyons' 20 cases, 11 were in the first and second weeks, and these were all positive. All of these workers obtained the blood from a vein.

Conradi was the first to indicate that a large quantity of blood is not imperative, and that excellent results can be had with blood from an ordinary skin puncture. He used 0.5 to 2 c.c. of blood from the ear and isolated the specific organism in 50 per cent. of 56 cases of typhoid and paratyphoid. This simple manner of securing the blood was subsequently neglected until Peabody,[8] early in 1908, confirmed and emphasized its usefulness. He reported 33 examinations: 5 cases in the first week, all positive; 19 cases in the second week, 78.9 per cent. positive; 9 cases in the third and fourth weeks, 44.4 per cent. positive. Taft and Maybee[9] studied a total of 98 cases by this method. They recovered the bacillus in 95 per cent. of 20 cases in the first week; 17.7 per cent. of 71 cases in the second week; and 14.2 per cent. of 7 cases in the third week.

Very recently I have made blood-cultures in 32 cases of suspected typhoid fever, some at the County Hospital, some in private work; and, although the series is small, it well illustrates the usefulness of this method of diagnosis. Nine of the patients proved not to have typhoid, and in none of these was any organism recovered from the blood. Of the remaining 23 cases, 17, or 73.9 per cent. gave the typhoid bacillus, and 6 gave no growth. In a few cases, early in the disease, the blood was obtained from a puncture of finger or ear; in most cases it was obtained from a vein; but as the results were identical they are included together in the tabulated analysis.

TABULATED ANALYSIS OF BLOOD-CULTURES

	Blood-Culture			Widal		
	No. Cases.	No. Positive.	%	No. Cases.	No. Positive.	%
First week....	5	5	100	4	3	75
Second week..	10	9	90	9	7	77.7
Third week...	8	3	37.5	7	6	85.7
Total	23	17	73.9	20	16	80

All of the nine examinations made prior to the tenth day of the disease were positive.

It is thus clearly evident that the blood-culture offers an almost certain means of diagnosis in the first week and is very helpful, though progressively less so, later in the disease; and that it is a valuable aid in distinguishing a true relapse from a febrile complication. In the first week it is probably a matter of indifference whether the blood be obtained from a vein or a skin puncture. The simplicity of the latter procedure removes the only remaining obstacle to the general use of blood-cultures in typhoid—the general reluctance to

3. Conradi: Deutsch. med. Wchnschr., 1906, xxxii, 58.
4. Kayser: München. med. Wchnschr., 1906, liii, 823.
5. Epstein, A.: Am. Jour. Med. Sc., 1908, cxxxvi, 190.
6. Joslin and Overlander: Boston Med. and Surg. Jour., 1908, clviii, 667.
7. Lyons, Randolph: The Clot-Culture in Conjunction with the Agglutination Test in Typhoid, Arch. Int. Med., 1909, iv, 64.
8. Peabody, F. W.: The Diagnosis of Typhoid Fever by Cultures from the Blood of the Ear, Arch. Int. Med., 1908, i, 149.
9. Taft and Maybee: Boston Med. and Surg. Jour., 1908, clviii, 863.

undertake a formal vein puncture—and should ensure their employment in every suspected case.

II. COMPARISON WITH THE WIDAL TEST

The blood-culture and the Widal agglutination reaction are in a certain sense complementary. The former becomes less reliable as the disease progresses, while the reliability of the latter steadily increases. This is to be expected when one considers that increased production of the antibodies on which the agglutination phenomenon depends must result in increased destruction of bacilli in the blood. Even though living bacilli be present, their vitality may be so reduced that they will not grow. On theoretical grounds, then, one would expect best results with blood-cultures when the Widal test is negative, and this accords with the empirical facts. The Widal is commonly negative in the first week of the disease, whereas the bacilli can be recovered in practically every case at this stage. My own cases sufficiently illustrate this: Of seven examinations before the tenth day, where the two tests were made together, the bacillus was recovered in 7 (100 per cent.), while the Widal was positive in four (57 per cent.). Early diagnosis is the goal in all clinical work and is especially important in typhoid fever in view of the now recognized contagiousness of the disease in the first week; and for this the blood culture is pre-eminently the method of choice. Bacilli have been recovered from the blood four days before the appearance of symptoms. Combination of the two methods will establish the diagnosis with certainty in nearly every case at any stage.

A simple and useful outgrowth of the formal blood-culture is the "clot-culture" used as confirmation and elaboration of the Widal test. Various European workers have recovered the bacillus from the clot remaining after a Widal examination—representing often less than a drop of blood. The examinations reported by Müller and Gräf,[10] Fornet,[10] Kurpjuweit,[10] and Conradi[11] total 539, the bacillus being recovered in 160, or about 30 per cent. Clot-cultures have been seldom used in this country. Recently Lyons[7] reported 20 examinations and made an interesting comparison. The clot-culture was positive in 12 cases (60 per cent.), the Widal in 10 (50 per cent.), and the two coincided in only 5 cases. By combining the clot-culture with the Widal the diagnosis was established in 85 per cent., which almost doubled the value of the latter used alone.

Another advantage of the culture is its definiteness. Although there is some variation in the time necessary to reach a conclusion, the final result is definitely negative or definitely positive. Any one who has made a considerable number of Widal examinations knows the frequency of doubtful reactions, where the personal experience of the worker is the chief factor in their interpretation.

Still another advantage of the culture method is in paratyphoid infections, which resemble typhoid clinically, but usually fail to give the agglutination reaction with typhoid bacilli. Here cultures are as valuable as in true typhoid, the paratyphoid bacillus being distinguished from the typhoid chiefly by its action on certain sugars. These cases are not very frequent, but may lead to much confusion because of the persistent absence of the Widal test.

10. Cited by Lyons: Arch. Int. Med., 1909, iv, 64.
11. Conradi, H.: Bacteriologic Early Diagnosis of Typhoid, München. med. Wchnschr., 1907, liii, No. 49; abstr. in THE JOURNAL A. M. A., 1907, xlviii, 375.

III. TIME REQUIRED

This is always an important consideration in a clinical method. Taft and Maybee were able to find the bacillus within twelve hours in many cases; in other cases eighteen or twenty-four hours were required. Only once, when the bacilli were present at all, did I fail to find them within twenty-four hours. This exception occurred in a mild case when only ten drops of blood were used.

IV. TECHNIC

Briefly, the method is as follows: The blood is obtained from a skin puncture or a vein, and is put as soon as possible into a test-tube containing the special culture medium. This is incubated for six to twelve hours, and tubes of bouillon or solidified blood-serum are inoculated. These also are incubated, and at intervals stained and hanging-drop preparations are made and searched for bacilli. If motile, Gram-negative bacilli are found, they are presumably typhoid bacilli, but cultures on special media are required to identify them positively.

Certain details require special mention.

Where the procedure can be carried out properly, it is preferable to secure the blood from a vein. By furnishing a larger quantity of blood it increases the likelihood of finding the bacillus; and it prevents contamination by bacteria from the skin. The skin at the bend of the elbow is prepared as for any minor operation, or it may be simply well rubbed with 80 per cent. alcohol; a bandage is applied to the upper arm; and, when the veins are sufficiently distended, a hypodermic needle attached to a syringe is introduced into any one that is prominent. Blood generally begins to rise in the syringe at once. When a sufficient quantity is obtained, the bandage is loosened, the needle withdrawn, and the blood allowed to run into the culture-tube. It is usually easy to secure 2 to 5 c.c. of blood, often more. The chief disadvantage of the method is that it requires a nurse or other assistant, and that the preparations may disturb a nervous patient. The operation itself causes surprisingly little inconvenience, seldom more than an ordinary hypodermic injection. There is usually little difficulty in entering the vein, except in children and in adults when the arm is fat and the veins are small. Instead of a syringe one can use a large glass tube which has been drawn out at the ends and ground to fit a "slip-on" hypodermic needle. These little instruments cost only about fifty cents, and several of them can be kept on hand in test-tubes sterilized ready for use.

In the other method a puncture of the ear is made exactly as for a blood-count, and the blood is pressed out and allowed to drop directly into the culture tube. This is open to the objections that only a small quantity of blood is secured—seldom more than 1 or 2 c.c.—and that the likelihood of contamination is great. It has been clearly proved, however, that results are little, if at all, inferior, in the first week, to those with the more elaborate method, and that, while contamination is always possible, it does not greatly interfere with detection of the bacillus when bile medium is used. This simple procedure is applicable to all cases in the first week, and may be used during the second week when conditions are not favorable for the more formal method, as is usually the case in private houses.

The medium which is now used by the majority of workers is simple ox-bile or pig-bile sterilized in an

autoclave. I use a 12 or 15 per cent. solution of Squibb's inspissated ox-gall and sometimes add 1 or 2 per cent. of peptone. Advantages claimed for the bile medium are that it prevents coagulation of the blood and consequent increase of its bactericidal power; that it allows the use of small quantities of medium which can be handled in test-tubes; that it furnishes a most excellent medium for the growth of the bacillus, which is an important consideration in view of the probability that most of the bacilli in the blood may be much reduced in vitality, and that it retards the growth of most contaminating organisms. Certain workers have thought that the advantage of the bile lies solely in its prevention of coagulation of the blood. Epstein,[5] after a careful study of various media, reports even better results with his oxalate solution.

When a Gram-negative, motile bacillus is found, it may be reported at once as very probably the typhoid bacillus. In every case in which I recovered an organism with these characteristics, it proved on further study to be the typhoid bacillus. Others, however, have recovered paratyphoid and colon bacilli, so that further tests should always be carried out, such as gas formation in dextrose media and indol production. The agglutination test for the identity of the bacillus is not available in routine work, since, as is well known, freshly isolated bacilli do not agglutinate well.

CONCLUSIONS

1. Bacilli are present in the blood in every case of typhoid fever throughout its course, and their destruction with liberation of endotoxins is the probable cause of the disease.

2. Bacteriologic examination of the blood offers a means of making a positive diagnosis in practically every case during the first week. Its usefulness decreases as the disease progresses, but is still great during the second and third weeks.

3. The blood-culture is in a sense complementary to the Widal test, the one decreasing as the other increases in reliability; but the former is the more useful in that it allows of earlier diagnosis, and that its results are not liable to misinterpretation. The two methods, used together, will establish the diagnosis in nearly every case at any stage.

4. Bacilli disappear from the blood in convalescence and reappear in a relapse; and a culture is thus useful in distinguishing a true relapse from a febrile complication.

5. The technic is so simple that the blood-culture is applicable to routine clinical work, and should be employed in every suspected case. The most reliable results are secured when the blood is withdrawn from a vein, and this method should be adopted whenever practicable. When the blood is obtained from a skin puncture, results in the first week are slightly, if at all, inferior; and this method may be used when the other is not feasible.

6. The time required for detection of the bacillus is usually twenty-four hours.

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Achondroplasia in a Twin.—Achondroplasia in a female twin aged 18 months is reported by Hutchison (*Proc. Royal Soc. Medicine*, December, 1909). The other twin, a boy, was normal. The children were born at full time. The health of the mother during pregnancy was good. There had been two miscarriages

SOME EFFECTS OF SODIUM BENZOATE*

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INTRODUCTION

This research was undertaken because of strikingly different experiences with sodium benzoate when taken by mouth in the following ways: (a) pure, as dry crystalline salt, or in aqueous solution; (b) in neutral or alkaline solutions, or in mixtures rich in fat, carbohydrate or protein, e. g., milk; (c) in acid vegetables or fruit, either warm, as in tomato soup, or cold, as in canned plums, peaches, tomatoes, etc.; (d) in beverages containing large percentages of organic acids, e. g., cider, lemonade, grape juice, etc.; (e) in mixtures containing inorganic acids, e. g., artificial gastric juice.

Brunton[1] has compiled data that show the comparative arresting influence of various drugs on the action of ferments (Table 1). From these data it is evident that the inhibiting action of a given amount of benzoic acid in combined form, e. g., sodium benzoate, is very much weaker than when the benzoic acid is free.[2]

TABLE 1

Comparative effects of benzoic acid and sodium benzoate on ferments in aqueous solution. The numbers indicate the dilution in which one part of the substance is effective in stopping the action of the enzyme.

	Emulsin.	Myrosin.	Diastase.	Invertin.	Ptyalin.	Pepsin.	Pancreatin.	Rennet.
Benzoic acid.....	2100	1100	1025	400	2600	200	2600	300
Sodium benzoate.	100	20	100	65	86	...	....	50

Comparative effects of benzoic acid and sodium benzoate on the development of anthrax bacteria. The numbers indicate the dilution in which one part of the substance is effective.

	(Lacroix) Prevents.	(Brunton) Hinders.	(Brunton) Kills.
Benzoic acid.....	2800	2000	400
Sodium benzoate.....	....	200	...

Lehmann[3] quotes Fleck as saying that the inhibiting power of benzoic acid on yeast fermentation decreases with increase of associated protein. Lehmann states, on the basis of his own experiments, that in the presence of relatively large quantities of albumin, or where the reaction is alkaline, neutral, or weakly acid, sodium benzoate is not a good preservative.

In Doepner's experiments,[4] physiologic salt solutions, containing also, respectively, 1 and 2 per cent. of sodium benzoate, were inoculated with *B. enteritidis* and stored in a *refrigerator*. Samples of these solutions were withdrawn from time to time and smeared on slant agar. The tests showed, after forty-eight hours, that there had been neither destruction of the bacteria nor any retardation of their growth. Similar tests at *room temperature*,

* From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons. This paper was read by invitation before the Society for Experimental Biology and Medicine, May 26, 1909 (Proceedings—abstract—1909, vi, 122); also before the Association of State and National Food and Dairy Departments in Denver, Aug. 26, 1909.

* Because of limitation of space, this article is here abbreviated by the condensation of several tables and the omission of others. All the tables appear in full in the author's reprints.

1. Brunton: Text-Book of Pharmacology, Therapeutics and Materia Medica, London, 1878, Ed. 3, p. 78.

2. Ordinary commercial sodium benzoate (C_6H_5COONa, H_2O) contains about 75 per cent. of the radical of benzoic acid ($C_6H_5COO—$), but whereas 1 part of benzoic acid in 2,100 parts of water arrests the action of emulsin, 21 parts of sodium benzoate must be present in a like volume to produce the same effect. A similar subordinate relation to benzoic acid is shown by sodium benzoate when comparative toxicity to other enzymes and bacteria is considered.

3. Lehmann: Chem. Ztg., 1908, xxxii, 949.

4. Doepner: Aerztliche Sachverst.-Ztg., 1909, xiii, 501.

however, with solutions containing 0.5 per cent. or 1 per cent. of sodium benzoate, gave evidence of a slight retardation of growth of this bacterium.

Fleck found that benzoic acid, in concentration equal to 0.6 or 0.7 per cent., caused marked inhibition of yeast fermentation, and that the arresting action was materially diminished by an increase in the amount of protein present. Lehmann observed that meat extract putrefied in the presence of 1 per cent. to 2 per cent. of sodium benzoate, but that a smaller proportion of benzoic acid was more strongly antiputrefactive in its action when the reaction of the extract was markedly acid. He also found that the action of benzoate under strongly acid conditions was practically the same as that of an equivalent amount of benzoic acid, but that it was diminished with decrease of the associated acidity.

EXPERIMENTAL

About a year ago I observed that, although no irritating effect was produced in the mouth, throat, esophagus, stomach or intestines by certain proportions of sodium benzoate when taken in cold, fresh milk, on the other hand, a very pronounced action followed the ingestion of the same proportions of that substance in warm tomato soup. The observations were made during a lengthy series of experiments in which I took sodium benzoate in milk at meal time. I drank the benzoated milk intermittently during the meals.

Pure sodium benzoate has a sweet, non-irritating taste, and, when added to fresh milk, imparts to the milk a sweet, bland taste, which is not rendered disagreeable by amounts of sodium benzoate equal to from 3 to 4 per cent. I have observed, however, that even very small proportions of sodium benzoate, e. g., 0.1 per cent. to 0.2 per cent. induce a decided effect on the flavor of warm tomato soup. Thus, in such soup, these slight proportions of sodium benzoate produce the burning, acrid irritation, specially noticeable in the posterior part of the buccal cavity, characteristic of benzoic acid. Sometimes even smaller proportions produce, in specially susceptible subjects, the sensation and effects of benzoic acid, such as burning in the esophagus and stomach, followed by nausea, gastric pain, cutaneous warmth, fulness of the head and muscular weakness. This is especially true when the benzoate is taken in warm, strongly acid, fruit juices or extracts.

These and similar observations led me to endeavor to answer the following questions:

1. Is benzoic acid toxic?
2. Is sodium benzoate toxic?
3. What is the degree of antiseptic action or toxicity of sodium benzoate, as a vehicle for benzoic acid, when the benzoic acid is liberated from it and allowed to act in the free state?
4. Has sodium benzoate an undesirable effect when consumed in fruits or other acid foodstuffs commercially preserved with sodium benzoate?
5. What are the influences of various diets on the effects of benzoic acid and sodium benzoate?

I. EFFECTS ON MICRO-ORGANISMS

1. Influence on the Fermentation of Fruit and Vegetable Juices

About fifty samples of juice from various fruits and vegetables were obtained and treated as follows: The material to be examined was reduced to a pulp, the juice was expressed from half (A) of the mass and filtered. Specimens of this juice (50 c.c.) were placed in beakers (usually 4 to 14). To each of half the number of samples in a set (a) was added 0.5 gm. of sodium benzoate (1 per cent.).[5] The mixtures were thoroughly stirred and set aside, uncovered, on a shelf in the laboratory. The remaining samples in each set (b) were used as controls. The unfiltered juice from half (B) of the original pulp in each case was subjected to the same treatment as that given the filtered half (A, a and b).

Tomatoes, apples, oranges, plums, lemons and carrots were used, with the following results: *Unpreserved* pulp, from each of the sources indicated, spoiled in from twenty-four to forty-eight hours, as was shown by discolorations and the presence of mold colonies. The unfiltered and unpreserved juices tended to spoil more promptly than did the corresponding filtered juices. Molds soon appeared on the surface of the unpreserved filtered juices as well as on the pulps and unfiltered juices; at first as a delicate, whitish growth, but later as a heavy olive-green, felt-like mass. The mold seemed to consist chiefly of *Penicillium*. In the *preserved* specimens clear, shining crystals, found to be benzoic acid, separated on the surfaces of the juices with the strongest acid reactions and in the substance, as well as on the surface, of the pulp specimens. No mold or discoloration occurred in the preserved specimens by the end of twenty days.

Specimens of carrot-pulp, which were neutralized with sodium carbonate, spoiled within twenty-four hours, despite the presence of 1 per cent. of sodium benzoate.

Special experiments were conducted to determine the action of sodium benzoate on the fermentation of apple-juice. Pure apple-juice ferments markedly within thirty-six hours, under ordinary conditions of exposure. Five liters of pure apple-juice, to which had been added sodium benzoate to the amount of 0.1 per cent. and cane-sugar to the proportion of 1 per cent., did not seem to ferment before the twenty-sixth day. The evolution of carbon dioxid continued slowly after the twenty-sixth day for two weeks. Several months thereafter the juice was sour, tasted slightly of benzoic acid, but was not appreciably alcoholic.

Pure apple-juice, treated with sodium benzoate to the amount of 0.1 per cent. and kept in uncovered beakers, developed mold in five to nine days. Under the same conditions, commercial preserved apple-juice failed to develop mold or become turbid.

2. Influence on the Fermentation of Milk

Fifteen 50 c.c. samples of a given supply of fresh milk were placed in as many beakers.

Samples 1 to 6 were set aside, untreated and uncovered, on a shelf in the laboratory. Each of these six specimens became quite thick in twenty-six hours, contained bubbles of gas and tasted sour. At the end of twenty-eight hours, to one of these sour samples 0.5 gm. of sodium benzoate were added. The sour taste disappeared, but a slight taste of benzoic acid was distinguishable after the mixture had been thoroughly stirred. The sodium benzoate taste was also marked. At the end of seven days no mold had appeared on this specimen, which, at that time, also tasted of both benzoate and benzoic acid. The five remaining unpreserved specimens were moldy at the end of forty-eight hours. By the end

5. Dr. Hortvet, State Chemist of Minnesota (Rep. of Chemist, Dairy and Food Dept., Minnesota, 1908; from Twelfth Biennial Report of the Commissioner, 1909, p. 23), found that out of 33 samples of acid commercial foodstuffs examined, none were free from sodium benzoate. In 29 of the specimens the amount of contained benzoate ranged between 0.10 and 0.67 per cent. In four the amounts of sodium benzoate were 0.06-0.09 per cent.

of the third day a mixture of reddish and greenish felt-like molds had grown on the surfaces of the unpreserved milk specimens. At the end of nine days the heavy felt-like layer was removed. The clabber below tasted sour.

Samples 7 to 11 were treated with 0.5 gm. of sodium benzoate in each case (1 per cent.) and allowed to stand under conditions identical with those to which Samples 1 to 6 were subjected. They had the characteristic taste of sodium benzoate, but no taste of benzoic acid was apparent until after the lapse of twenty-four hours. The samples then began to develop a benzoic acid taste. At the end of ten days they had not thickened, but appeared to be more fluid than they were originally. At that time the fat had separated out in a solid cake on the surface, but no mold had appeared on any of the samples, which tasted *slightly* of benzoic acid and strongly of benzoate. The sweetish taste was followed by a burning sensation ten to twenty seconds after the material had been swallowed.

To Sample 12 was added 5 c.c. of litmus solution, 10 c.c. of very dilute ammonium hydroxid. and 0.5 gm. of sodium benzoate. It was allowed to stand with the other samples. It remained neutral throughout the first day. When the specimen was observed on the second day it was acid in reaction and tasted of benzoic acid. It did not thicken or get moldy.

To Sample 13 was added 0.5 gm. of litmus, 2 c.c. of 5 per cent. sodium carbonate solution and 0.5 gm. of sodium benzoate. It was allowed to stand with the other samples. It became acid in twenty-four hours. The fat cake on the surface of the specimen was red. The samples did not thicken, but a heavy mold developed, although the taste of the benzoic acid was noticeable.

Sample 14, to which powdered litmus was added, became sour in twenty-four hours under the external conditions to which all the samples of the series were subjected. Clabber formed in forty-eight hours, and there was a heavy growth of mold on the sixth day.

Sample 15, to which 5 c.c. of 0.5 per cent. sodium carbonate was added, became acid on the second day, but did not thicken. A cake of fat formed on top and a slight growth of mold appeared on the sixth day; heavy mold developed later.

In similar experiments on 30 samples of various kinds of fresh milk, e. g., certified, pasteurized, kosher, and plain market milk, the above observations have been confirmed.

One specimen of pasteurized milk, containing 1 per cent. of sodium benzoate and kept at room temperature, thickened on the seventeenth day. One such preserved specimen kept in a refrigerator developed mold on the eleventh day. One milk specimen containing 1 per cent. of sodium benzoate, and placed in a refrigerator, did not develop the taste of benzoic acid in seventeen days, but had a sweetish taste and smelled putrid.

3. The Action of Free Benzoic Acid on Fresh Milk

When 1 per cent. of benzoic acid is present in fresh milk, thickening of the specimens is delayed very little, if at all. It was observed that, in a very short time after such proportions of benzoic acid were mixed with fresh milk, all taste of benzoic acid disappeared, the specimens assuming a modified benzoate taste, which persisted until a few hours before the general thickening occurred, when the benzoic acid taste again became evident. It seems probable that some constituent or constituents of the milk are capable of combining with free benzoic acid and thus preventing the irritating action of benzoic acid on the mucous membranes of the alimentary tract, as well as modifying its taste, when swallowed in milk. The proteins, as well as the alkaline phosphates, may have this property. An inquiry into this matter was made in the following experiment:

Into each of twelve test-tubes 10 c.c. of sweet milk was poured, and 0.01 gm. of sodium benzoate (0.1 per cent.) was then added to each of ten of these portions of milk. Decreasing amounts of benzoic acid were then added to seven of these mixtures. The twelve tubes then contained the following:

Tube No.	Benzoate.	Benzoic Acid.	Tube. No.	Benzoate.	Benzoic Acid.
	Gm.	Gm.		Gm.	Gm.
1	0.01	1.0	7	0.01	0.05
2	0.01	0.8	8	0.01	none
3	0.01	0.6	9	0.01	none
4	0.01	0.4	10	0.01	none
5	0.01	0.2	11	none	none
6	0.01	0.1	12	none	none

The time of precipitation and thickening are indicated in Table 2, from which it is evident that sodium benzoate tends to delay coagulation. The data in that table also show that benzoic acid tends to counteract the retardation of coagulation in proportion to the amount added, and even to hasten the thickening of milk when added in large amounts. It was noted that Sample 1 tasted of benzoic acid throughout the experiment; Sample 2 developed that taste on the second day; Samples 3, 4, 5 and 6 had a very slight taste of benzoic acid on the second day as well as a strong taste of sodium benzoate; while Samples 7, 8, 9 and 10 tasted only of benzoate, and Samples 11 and 12 (controls) had the ordinary taste and souring set in at the usual period.

From these and the previously mentioned results it may be concluded that one or more constituents of milk have the power of combining with relatively large amounts of benzoic acid, detoxifying it so as to render it comparatively non-inhibiting to the lactic acid ferment (?) and non-irritating to mucous membrane, until the fermentation acidity is developed to a strength sufficient to enforce the presence of free benzoic acid.

II. EFFECTS ON MEN

1. Influence When Administered in Acid Fruit-Juices, Vegetables, and Milk

Samples of milk and of the pulp of tomato (warm and cold), orange, lemon, apple, plum and carrot, containing 1 per cent. of sodium benzoate, were tasted by fourteen different persons. Not more than 0.1 gm. of benzoate was taken at a time in this way in about three tests per day. Each subject noted a distinctly acid, astringent, irritating taste. In one subject, suffering from coryza, there was an increase of the nasal secretion, accompanied by lacrimation and coughing. In most cases there was belching and passage of gas by rectum. In one subject who had been suffering from a gastro-intestinal derangement for several days these effects were especially marked. The sodium-benzoated material caused slight nausea accompanied by abdominal uneasiness for four hours in one individual. This subject, a man of scientific training and experience, pronounced the material (orange-juice containing 1 per cent. of sodium benzoate) "vicious stuff." Only one test could be obtained on this subject. It was noted throughout these tests that the irritating effect varied with the degree of acidity of the vegetable product.

The observed effects on taste may be summarized as follows: Acid fruit-juices containing 1 per cent. of

sodium benzoate had a biting taste, an effect due to liberated benzoic acid. Milk or vegetables rendered alkaline and treated with sodium benzoate (1 per cent.) did not taste of benzoic acid at any time during the first twenty-four hours after the treatment, but after about twenty-four hours acid fermentation began, in spite of the presence of 1 per cent. of sodium benzoate, and the mixtures tasted slightly of benzoic acid. In samples of carrot-pulp the stinging taste of benzoic acid was not so evident as with the more highly acid materials. Small volumes of orange-juice (1 c.c. at a time), containing 1 per cent. of added sodium benzoate, caused burning in the posterior part of the mouth, the throat, the esophagus and stomach.

Apple-juice to which a *small* amount of sodium benzoate is added becomes sweeter but astringent and stinging to the taste and irritating to the mucous membranes. The presence of 0.5 per cent. of sodium benzoate renders cider unpalatable, but the presence of 0.1 per cent. may be overlooked by subjects not acquainted with the taste of pure apple-juice.

One subject who had tasted the various fruit and vegetable materials, as well as pure sodium benzoate and benzoic acid, at various times during three days (taking an amount equivalent to about 1 gm. of benzoic acid per twenty-four hours) eliminated urine which, on the third day of the ingestion, contained a trace of albumin. The benzoate ingestions were immediately discontinued. The subject's urine had been examined four times in the previous eight months, twice by several eminent physicians, and the last two times in this laboratory, several days previous to the initial dosage with the benzoate. At all these prior examinations the subject's urine was free from albumin. The subject was a medical student. There was no reason to suspect that he had had any kidney trouble previous to the sampling of the benzoate. Several days after discontinuing the ingestion of benzoate the albumin disappeared from the subject's urine.

After repeatedly ingesting small amounts of fruit-pulps treated with sodium benzoate (1 per cent.) two subjects experienced fulness of the head, headache, a feeling of fatigue and depression. The samples were taken into empty stomachs. The data show that in the majority of fourteen subjects benzoic acid, liberated from sodium benzoate by acid fruits and vegetables (and contained in them), was sufficiently irritating to cause considerable gastro-intestinal disturbances, as well as general systemic symptoms, even when taken in minute amounts, and especially on a stomach containing but little else than the ingested benzoated materials.

These preliminary observations were followed by an effort to determine some of the possible effects of food products preserved with benzoate as allowed by law[7] and as customarily consumed, e. g., *cider* containing 0.1 to 0.5 per cent. of added sodium benzoate and taken principally between meals.[2]

Cider was used in this part of the study. The quantity of cider generally offered was a volume equal to the average quantity of pure apple-juice consumed within a period of one-half to two hours under normal conditions by the subjects. This "normal" amount was determined by placing freely at the disposal of the subjects 5 gallons of unpreserved, untreated Baldwin apple-juice from cold storage at 32 F., "pressed" and stored one month previous to its use, and which was in a state of perfect preservation. Assistants in this laboratory and various attachés of the college, twenty in number, drank freely of the cider. It was requested of them that a careful record be returned of the amount each consumed. Question-blanks regarding symptoms and effects were filled in by all the subjects and returned on the second day. The average amount of cider taken during an afternoon, often at one time, by men who were busy with their regular work, was 1,200 c.c. Amounts up to 1,500 c.c. were consumed rapidly as a rule, while those who drank as much as 2,500 c.c. usually consumed the total volume in two main portions at intervals of two to three hours.

2. *The Effects of Pure Apple-Juice*

The cider, 40 gallons of which were used in this investigation,[8] was a bland, acid liquid. It did not produce a stinging sensation in the throat when swallowed.

The pure apple-juice when consumed in volumes larger than 500 c.c. promptly caused considerable diuresis. The specific gravity of the urine was greatly decreased when a liter of pure cider was consumed. Volumes of cider larger than 1,000 c.c. gave in some cases moderate laxative effects. Several subjects who in each case drank 2,000 c.c. experienced no special laxative effects, although this volume usually caused laxation. One subject drank 2,500 c.c., but experienced no laxative effects. Constant diuretic and occasional laxative effects were noted, with probably a slight subsequent improvement in physical condition. The average amount of pure apple-juice consumed (in the second test with pure apple-juice) during three-hour periods by adult males (17 subjects) who had free access to it, was 1,370 c.c. (Table 3).

3. *The Effects of Benzoated Cider.* (*A*) *First Experiment*

Twenty-four subjects were observed in the first experiment. For convenience of publication the tabulation of data has been arranged in groups according to dosage of the subjects. Twelve received pure apple-juice. Twelve received samples of the same apple-juice containing 0.1 per cent. of added sodium benzoate.[8] As none of the subjects knew that they were to receive at that time anything but pure apple-juice, unfavorable psychologic influences were eliminated from the experiments. Each subject received three question-blanks to be filled out by himself daily, so long as any symptoms lasted, which I am assured was done faithfully in all but two instances. The data obtained in the observations are recorded in Tables 4, 5 and 6.

The question as to how much benzoated cider the unsuspecting subjects might be safely permitted to drink was tested carefully on a number of the assistants and

7. "Pending the determination by the Referee Board of the wholesomeness or unwholesomeness of benzoate of soda, its use will be allowed under the following restrictions: Benzoate of soda, in quantities not exceeding one-tenth of one per cent. may be added to those foods in which generally heretofore it has been used. The addition of benzoate of soda shall be plainly stated on the label of each package of such food." Food Inspection Decision 101, U. S. Dept. Agric., Dec. 26, 1908.

"It having been determined that benzoate of soda mixed with food is not deleterious or poisonous and is not injurious to health, no objection will be raised under the Food and Drugs Act to the use in food of benzoate of soda, provided that each container or package of such food is plainly labeled to show the presence and amount of benzoate of soda." Food Inspection Decision 104, U. S. Dept. Agric., March 3, 1909.

8. The pure cider used in this experiment had a total free acidity of 2.716 gm. per liter, calculated as acetic acid, and 3.254 gm., calculated as malic acid. Of this pure juice, 100 c.c. yielded to ether 0.092 gm. of sticky extractives. Of an aqueous 0.1 per cent. solution of sodium benzoate, 100 c.c. yielded to ether 0.0007 gm. of oily extractive, but 100 c.c. of cider, containing 0.1 per cent. of sodium benzoate, yielded to ether 0.0827 gm. of extractive. The extractive was a white crystalline product. Amounts of benzoic acid (0.847 gm.) equivalent to those in 100 c.c. of cider containing 0.1 per cent. of sodium benzoate, but dissolved in 100 c.c. of water and neutralized with $NaHCO_3$, yielded to ether 0.003 gm. of sticky extractive material.

TABLES 3, 6, 7 AND 9.*—CLINICAL ANALYSIS OF OBSERVED EFFECTS OF APPLE-JUICE: PURE AND ALSO CONTAINING VARIOUS PERCENTAGES OF BENZOATE OF SODA

Percentage of Benzoate of Soda.	Number of Observations.	Average Body Weight, pounds.	Average Age.	Average Amount of Cider Ingested, c.c.	Taste of Cider.	Average Time Since Last Meal. Hours.	Data Pertaining to the Bowels (Movements). Usually Physicked. Easily.	Usually Physicked. Not Easily.	Average Normal Daily Movements.	Total Number.	Solid. (Total No.)	Fluid. (Total No.)	Griping. (Total No.)	Duration of Laxative Effects; hrs.	Flatulence.	Effects On Mouth.	Stomach. Fulness.	Stomach. Belching.	Stomach. Burning.	Stomach. Nausea.	Stomach. Vomiting.	Head. Ache.	Head. Fullness.	Respiratory Apparatus. Cough.	Respiratory Apparatus. Expectoration.	Skin: Perspiration.	General.	Appetite.
Pure juice..... (Table 3.)	25 on 17 subjects.	145	29	1570	Nothing disagreeable.	¾	14	5	1.1	24	10	13	2	1-24	7	0	20	11	0	1	1	1	4	1	1	0	No depression.†	No bad effects.‡
0.1..... (Table 6.)	22 on 20 subjects.	145	26½	1030	Abnormal.....	2½	2	7	1.2	28	6	16	7	2-24	11	10	16	12	8	7	2	10	13	1	1	11	General depression, 13. Irreg. towels in 1 case for 3 days.	Decreased, 11.
0.2 to 0.3..... (Table 7.)	6 subjects.....	161	27½	940	Very abnormal...	1½	3	3	1.7	5	0	5	3	0-72	4	6	5	4	4	4	0	3	3	0	0	3		No effect.
0.3 to 0.5..... (Table 9.)	1 subject, H. W..	150	24	1000 (0.2%)	Sweet, strong	1	+	....	2	0	0	0	0	0	0	0	+	+	0	+	0	0	0	0	0	+		
	1 subject. D. R. L.	140	28	1000 (0.5%)	Astringent.....	¾	+	....	1	0	0	0	0	0	0	Burning.	+	+	+	+	0	+	+	0	0	+	Tremor.....	Lost.

* Tables 3, 6 and 7 are given in abstract, and Table 9 in full. The sign + means "present" or "yes."
† Without exception each subject noted a very considerable increase in the secretion of urine, commencing in one-half or three-quarters of an hour after drinking the apple-juice.
‡ One subject was suffering from influenza before the experiment was commenced. The nausea, vomiting and headache recorded in the table were experienced on the second day but were possibly the result of the influenza.

TABLES 4, 5, 8 AND 10.*—CLINICAL ANALYSIS OF OBSERVED EFFECTS OF APPLE-JUICE: PURE AND ALSO CONTAINING VARIOUS PERCENTAGES OF BENZOATE OF SODA

Percentage of Benzoate Added.	Number of Observations.	Average Weight, lbs.	Time Since Last Meal. Hours.	Volume of Cider Ingested. c.c.	Dose of Benzoate, gm.	Character of Effect on Bowels.	Perspiration.	General Clinical Observations. Blood-Pressure, mm. Hg. Before.	Blood-Pressure, mm. Hg. After.	Pulse. Before.	Pulse. After.	Temperature. Before.	Temperature. After.	Urine. Volume After. c.c.	Color. Before.	Color. After.	Specific Gravity. Before.	Specific Gravity. After.	Albumin. Before.	Albumin. After.	Reduction of Fehling Solution. Before.	Reduction of Fehling Solution. After.	Amount of Indican. Before.	Amount of Indican. After.
None..... (Table 4).	10	142	2.25	1240	0	Laxative (4 cases). No effect (6 cases).	0	131	126	89.5	90.5	97.7	97.5	7 subjects, 3 hours; 402.8.	.....	Marked decrease in color.	1021	1011	1; trace.	0	0 *	0	.....	Amount decreased.
0.1..... (Table 5.)	19	146	2.1	1120	1.13	Marked irregularity. Diarrhea or constipation.	8	117	116	93.0	90.0	97.5	97.5	Average of 14 who had no laxative effect, 3 hrs., 259. 122.7	.....	Decrease in color not marked.	1020	1019	2; trace.	6; trace. 1; heavy.	4; slight.	5; slight. 7; marked.	7; slight. 1; moderate.	5; slight. 1; less. 1; increased.
0.2–0.3..... (Table 8.)	6	161	1.5	940	2.5	No effect, (3 cases). Loose (2 ca.). Constipated (1 case).	Slight, 1. Marked, 2.	115	108	86.0	89.0	97.8	97.5		.....	Increased.	1019	1027	1‡	6; trace.	2; slight.	6	1	3
0.3 to 0.5..... (Table 10.)	1 subject, H. W.	150	1	1000 (0.3%)	3	No effect.	Slight.	150	125	106	96.0	98.8	98.8	3 hours; 550.	Amber.	Decreased.	1024	1039	Faint trace.	Marked.	0	0	Positive.	0**
	1 subject, D. R. L.	140	0.75	1000 (0.5%)	5	Irritation next day.	Yes.	120	100	78	66.0	98.3	96.8	3 hours; 110.	Amber.	Increased.	1027	1030	0	0	Slight.	Very marked.	0	0

* Tables 4, 5 and 8 are given in abstract, and Table 10 in full.
† In this subject there was persistently abnormal thirst, and excretion of urine. Repeated examination failed to reveal the presence of any sugar.
‡ The one subject showing albumin in his urine before the inauguration of this test had been a subject two months previously in an experiment in which cider containing only 0.1 per cent. of sodium benzoate was administered. No albumin had been detected in his urine immediately after that experiment.
* * H. W. has had polyuria for years. The volume and specific gravity of his urine is exceptional.

attachés in this laboratory. The volume that could be taken without inducing more than slightly unpleasant effects was found to vary greatly with the different individuals.

Twelve men who received the pure juice during the first experiment noted on their blanks collectively the following symptoms: belching, flushing of face, slight headache and griping.[9] The average amount of cider taken was[10] 1,200 c.c.

The twelve men who took the cider containing the added 0.1 per cent. of sodium benzoate noted on their question-blanks collectively the following symptoms: astringent peppery taste, fulness of head, frontal headache, nervousness, belching, griping, passage of gas by rectum, nausea, dry mouth, excessive perspiration, itching of skin and scalp, pain in the stomach, vomiting. There was also irregularity of the bowels (constipation often), decreased secretion of urine, increased specific gravity of the urine, reduction of Fehling solution and albuminuria. Most of the subjects showed several of these symptoms, except vomiting (Table 3). The average amount of benzoated cider taken (20 subjects) was 1,090 c.c., and the corresponding amount of ingested sodium benzoate (benzoic acid?) was 1.09 gm. or 0.82 gm. of benzoic acid. Excessive amounts of hippuric acid were eliminated, especially during the first few hours after ingestion of the benzoated apple-juice, coincident with the tendency to decreased secretion of urine.

It can be stated with certainty from the results of this test that 1,000 c.c. of benzoated cider (0.1 per cent.) caused distinctly undesirable effects in some cases, the symptoms and positive chemical findings being very slight in some, but sufficiently marked to be termed toxic in others. The proportion of benzoate in the cider (0.1 per cent.) was less than the smallest proportions of that preservative which it is believed are used by the great majority of manufacturers who employ it,[2] but the absolute amount taken was greater in each case than the ordinary dose of benzoic acid for medicinal purposes. The benzoic acid was ingested in a most potent state, i. e., in solution.

B. Second Experiment.

The second experiment on 17 subjects was carried out for the purpose of studying the comparative effects of different proportions of sodium benzoate ingested in cider. The most robust individuals were given high percentages. All received benzoated cider, the percentages of benzoate ranging from 0.1 per cent. to 0.3 per cent., save in my own case, in which the proporton was 0.5 per cent. (Tables 7, 8 and 9).

The record in Table 11 gives the clinical findings in observations on a subject who, on widely separated dates, drank 1,000 c.c. of cider containing, respectively, 0.1 per cent. and 0.2 per cent. of added sodium benzoate. The data show strikingly how even the healthiest subjects may be seriously affected by only 0.2 per cent. of added sodium benzoate (2 gm.) in cider. In this case the subject was practically unaffected by the cider containing 0.1 per cent. of added sodium benzoate.

From careful analysis of all the data it is apparent that small proportions of benzoic acid in cider regularly caused unusual variations, decrease in the normal volume of urine secreted in the first three hours after ingestion, and corresponding increase in the specific gravity, in spite of the ingestion of the great volume of fluid. Albumin appeared in the urine in 10 out of 17 cases within three hours. Only 8 of the 10 individuals whose urine contained albumin consumed 1,000 c.c. containing 0.1 per cent. to 0.3 per cent., while two ingested less. The urines of 14 of the subjects showed marked reduction of Fehling solution, which is recognized evidence of intoxication by benzoic acid.

One thousand c.c. of filtered cider, containing 0.2 to 0.3 per cent. of sodium benzoate, caused albuminuria within three hours almost without exception in the largest and soundest picked subjects. I myself, however, was able to ingest 1,000 c.c. of apple-juice containing 0.5 per cent. of added sodium benzoate without any albuminuria arising. The amount of hippuric acid in my urine was very large for the first few hours thereafter. The secretion of urine was very much reduced for twelve hours, while I suffered from some of the other symptoms above mentioned, although as a subject in a former investigation I ingested, without the slightest discomfort, larger amounts taken in milk and on a full stomach.

Small doses of sodium benzoate added to acid substances aggravated albuminuria already present, and in one subject caused alarming symptoms, classical of nephritis, for six days thereafter.

III. EXPERIMENTS ON DOGS

Chassevant and Garnier[11] found that 1.4 gm. of benzoic acid per kilo was fatal to guinea-pigs in from five to seven hours. Somewhat larger doses (2 gm. per kilo) did not necessarily kill guinea-pigs more quickly. I have given similar doses to dogs in the experiments described below.

1. First Experiment

A dog weighing 3.5 kilos fasted twenty-four hours. It was then given 1 gm. of sodium benzoate decomposed with the exact amount of hydrochloric acid theoretically necessary to convert benzoate into free benzoic acid and sodium chlorid. In thirty minutes the animal showed evidences of muscular weakness and nausea; lay quietly and breathed in a laborious manner. This condition continued for six hours. On the following day, twenty-four hours after the previous dose, the animal was given 4 gm. of sodium benzoate, in an amount of hydrochloric acid just sufficient theoretically to decompose it completely into free benzoic acid, together with 120 c.c. of 0.2 per cent. citric acid. The dog was allowed to see and smell fresh meat in order to encourage gastric secretion. The animal become very weak in one hour; respirations were reduced to nine per minute and were labored. Tonic and clonic convulsions began in one hour and fifteen minutes after the dosage. The animal, after several hard convulsions, died in two hours and twenty minutes after the administration of the benzoate.

The autopsy showed very pronounced congestion of the kidneys, stomach and intestines; with ulceration in places. The liver and lungs showed evidences of hemorrhage.

2. Second Experiment

Two dogs had been fed on dog biscuits and water for several weeks. They then fasted for thirty-six hours.

Animal 1 weighed 3.5 kilos and received a dose containing 3.5 gm. of sodium benzoate plus 0.65 c.c. of concentrated hydrochloric acid (sp. gr. 1.19) in 50 c.c. of water and 100 c.c. of citric acid (0.2 per cent.). The animal became uneasy after the treatment. At the end

9. See footnote appended to Table 3.

10. As the notes of two of these subjects appeared to be unreliable save for the volume consumed, the other data in their cases were omitted from consideration.

11. Chassevant and Garnier: Arch internat. de pharm. et de thérap., 1905, xiv, 117.

of an hour it showed muscular weakness and tremor. It then gradually improved.

Animal 2 weighed 4.25 kilos and received a dose consisting of 0.85 c.c. of concentrated hydrochloric acid (sp. gr. 1.19) in 50 c.c. of water and 100 c.c. of 0.2 per cent. citric acid. This dog was entirely unaffected by the treatment.

These experiments were repeated the next day and the results were practically the same; the animal receiving the free acid-benzoic acid mixture, however, was more prostrated than on the previous day and showed general stiffness of the muscles. At the end of six hours it was chloroformed and an autopsy performed, when it was found that the stomach contained "coffee-ground" material. There were ecchymotic areas and also ulcerated patches here and there throughout. The grumous material contained in the stomach and intestines was undoubtedly modified blood from the alimentary tract, as blood from extraneous sources had been guarded against by the preliminary treatment. The liver and lungs showed considerable congestion with some evidences of hemorrhage. The kidneys were cyanotic, the cortex very much congested, while the medulla was pale and anemic.

Additional experiments in these particular connections will soon be concluded.

DISCUSSION

The results of this investigation show that sodium benzoate is a poor preservative under some conditions. My observations in this regard confirm the findings of Lehmann and others.

Many of the results of these experiments accord with my personal experiences and observations when I was a subject in the reinvestigation of the effect of sodium benzoate on man by the Referee Board of Consulting Scientific Experts, some of which are referred to, only in a general way, however, in the report by the board. In the experiments of that board, in which I was a subject, sodium benzoate, in aqueous solution, was added to milk, and such benzoated milk was ingested from time to time during meals. Under those conditions there were no pronounced effects aside from a feeling of malaise. During the course of the investigation I happened to change my method of taking the benzoate by adding a portion of the benzoate solution to acid portions of the food, such as tomato soup, plums, peaches, etc., which were eaten at the beginning of some of the meals. After a few days of this procedure, I began to notice sharp pains, which would set in about thirty minutes after each meal and continue for one or two hours. These pains were aggravated by any muscular efforts, such as the carrying of a satchel. About this time, shortly after the regular test meal was eaten and stomach contents removed, I experienced considerable gastric pain which lasted several days, whereupon I returned to the previous method of ingesting benzoate, i. e., in milk. The symptoms of gastric irritation then gradually entirely disappeared, in spite of the fact that about three days afterward the dose of benzoate was increased from 2.5 to 3 gm. per day for three days. These symptoms were reported to the acting director of the investigation, but it was assumed by him that they were not due to the benzoate treatment. As I desired to continue the work until it was completed, however, I did not repeat the ingestion of large doses in acid food. During the succeeding three days the daily dose of benzoate was increased to 6 gm., taken on a full stomach in milk, without causing the slightest discomfort.

The important general difference between my results and those of various previous observers is due, I believe, to the fact that in my research free benzoic acid was the more active factor, whereas in others the benzoate was not appreciably decomposed into free benzoic acid, or, if thus decomposed, was accompanied by materials which rendered the benzoic acid relatively inert.

Such a deduction is in harmony with what we know of the comparative effects of salicylates and free salicylic acid, for example; the acid is much more irritating in its effects than the salt.

Sodium benzoate in small quantities is particularly efficient as a preservative only when it yields free benzoic acid. The influence of benzoic acid, therefore, is the essential question in a study of the effects of sodium benzoate as a food preservative.

SUMMARY OF GENERAL CONCLUSIONS

Sodium benzoate in proportions equal to about 1 per cent. was found to be a poor preservative of neutral or weakly acid media.

Sodium benzoate in proportions equal to about 0.1 per cent. is a fairly good preservative of strongly acid products. In acid-reacting media the benzoate is decomposed into free benzoic acid, which exerts most, if not all, of any preservative action exhibited.

Benzoic acid, liberated from sodium benzoate by strongly acid fruits or vegetables and taken in them, even in small amounts, into an empty stomach, is sufficiently irritating to cause gastrointestinal disturbance as well as systemic symptoms.

In men, volumes of a liter or more of pure apple-juice caused constant diuretic and occasional laxative effects, an immediate feeling of fulness and often belching.

Similar volumes of cider containing 0.1 to 0.2 per cent. of added sodium benzoate usually caused many of the following symptoms or effects: astringent peppery taste, fulness of head, frontal headache, nervousness, belching, griping, passage of gas by rectum, abnormal perspiration, dry mouth, pain in stomach, nausea, vomiting, irregularity of the bowels (often constipation), decreased flow of urine, increased specific gravity of the urine, albuminuria, and urinary reduction of Fehling solution. Excessive amounts of hippuric acid were eliminated especially during the first few hours after ingestion of the benzoated apple-juice (coincident with the tendency to decreased secretion of the urine).

The lethal dose of sodium benzoate for dogs is not relatively large if it be given on an empty stomach and secretion of gastric juice is encouraged. The lethal dose under such conditions is apparently less if given in an appropriate acid medium.

In the proportions in which sodium benzoate is efficient as a preservative of acid food materials it may also be toxic in its effects on men.

When large quantities of protein, fat or alkaline food materials are ingested with sodium benzoate there is a diminution in the toxic action of the drug.

Further investigation is in progress, especially on the influence of nephrectomy, on the toxicity of sodium benzoate and benzoic acid.

I am indebted to many of my associates in the Purdue University Alumni Association of New York City for volunteering as subjects in this investigation and thus making it possible for me to carry out experiments on a large number of individuals. The secretary, Mr. Leslie Hustable, also Mr. Ray C. Ewry, Mr. R. W. Parks, Mr. F. M. Waltz, and Mr. H. Worsham of that organiza-

tion, have given me special assistance in various ways. I am also indebted to Drs. A. E. Olpp and Matthew Steel and Messrs. Herzfeld and Bisch for cooperation and to Drs. Foster, Mosenthal and Rosenbloom for assistance. Professor Gies has given me all the facilities of his laboratory for conducting this research, as well as valuable criticism and suggestions.

NOTE.—In addition to the authorities previously cited, the following authors have published facts of interest on the subject:
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THE SURGICAL ELEVATION OF THE STOMACH IN GASTROPTOSIS BY SUTURE OF THE GASTROHEPATIC OMENTUM

A FURTHER REPORT OF RESULTS

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PHILADELPHIA

The operation of elevation of the stomach to normal position, through either direct suture of the stomach or suture of its ligaments, is a comparatively new one in surgery.

The first description of an operation devised and practiced for this purpose was published by Duret[1] of Lille, France, in 1896. The patient was greatly emaciated and in a condition described as cachectic. The operation was suggested and carried out only as a last resort, it was thought, as the only possible means of saving the patient's life. The description of this surgical procedure attracted no attention, and, although two years afterward, the operation having been performed in March, 1894, the patient had gained 25 pounds in weight and was greatly improved in health, there is no further report of a wider experience by this writer.

In the succeeding fifteen years, up to the present time, as far as can be learned from the literature, the operation has been performed by but few surgeons—Davis, Coffey, Martin, Mayo, Noble, Hodge, Clark, LaPlace and myself in this country, Rövsing in Copenhagen, Hartmann in Paris, Bier and Gelpke in Germany, and Eve in London. With the exception of Rövsing, Bier, Gelpke and myself, the experience of each surgeon has been limited to one, two or three cases. The total number of operations performed and described I have estimated to be not more than 130, and, of these, 75 were performed by Rövsing and 26 by myself.

The operation, designated as gastropexy, which was carried out by Duret, consisted in suturing the stomach at the lesser curvature to the parietal peritoneum just below the xiphoid cartilage. The stomach was thus firmly fixed to the anterior abdominal wall.

Davis[2] in 1897 sutured the gastrohepatic omentum near its attachment to the stomach to the parietal peritoneum of the abdominal wall.

Rövsing[4] in 1899 elevated the stomach by passing three rows of interrupted sutures from right to left through the serosa and muscularis of the anterior wall of the stomach and all the structures of the abdominal wall. The first row was placed just below the line of the lesser curvature of the stomach, the second row 2 cm. below this one, and the third row 3 cm. above the greater curvature. The gastric peritoneal surface between sutures and the parietal peritoneum were scarified. When the sutures were secured a broad surface (6 cm.) of the anterior wall of the stomach was permanently fixed to the anterior abdominal wall near the xiphoid cartilage. Rövsing[5] recently (1906) reports a total of 75 patients operated on by this method. He has modified the operation to the extent that the three rows of sutures are placed closer together, so that the lower one-third of the stomach is left free. In 13 the operation was combined with nephropexy, and in 22 hepatopexy was also performed. He states that without exception these patients have gained good health.

Hartmann[6] described a case in 1899 in which, because of dilatation and vertical dislocation of the stomach, he plicated the pyloric portion of the stomach and then fixed this end of the organ to the parietal peritoneum of the diaphragm beneath the left ribs with the plication sutures.

Coffey[7] (1902) operated in 2 cases of gastroptosis in which he elevated the stomach by suturing the great omentum at a point one inch below its attachment to the transverse colon to the anterior abdominal wall about one inch below the umbilicus.

Gelpke[8] (1906) describes an operation carried out in 7 cases, in 5 of these combined with pyloroplasty, in which the median portion of the anterior wall of the stomach was sutured to the costal margin.

Eve[9] of London (1907) elevated the stomach by attaching the lesser curvature to the surface of the liver at the attachment of the gastrohepatic omentum, combined with the suture of the great omentum to the anterior abdominal wall.

During the years 1897 and 1898 the late Dr. William Pepper and Dr. Alfred Stengel had under their care at the University Hospital a patient suffering with the severe symptoms of gastroptosis, in which every medical and mechanical treatment, including a prolonged rest-cure, had been faithfully applied without benefit. At this time, March, 1898, Dr. Pepper suggested to me that some surgical operation might be undertaken to restore the stomach to normal position in this patient. I was not aware that any surgery (that of Duret and Davis) had been applied in this condition. After a careful investigation of the anatomic relations and ligamentary supports of the stomach on the cadaver, and considering the importance of the preservation of the physiologic mobility of a hollow viscus, particularly the stomach, I devised and practiced for the first time in April, 1898, the following operation:

The patient was placed on the Bolt operating-table in a position opposite to that usually employed for operations through the lower portion of the abdomen. The object of this position was to permit the elevation of the thorax and upper abdomen, which would allow the gravitation and easy displacement of the intestines and stomach out of the field of operation and give the greatest operative space, in order, in other words, to gain the every advantage of the Trendelenburg position. An incision about three inches in length was made through the linea alba, midway between the xiphoid cartilage and umbilicus. This incision exposed the lesser curvature and cardiac end of the stomach, the gastrohepatic ligament or

1. Duret: Rev. de chir., 1896, p. 430.
2. Davis: West. Med. Rev., October, 1897, p. 291.
4. Rövsing: Arch. f. klin. Chir., 1899, lx, 812.
5. Rövsing: Samml. klin. Vortr. Leipsic, 1906, New Series, xv, No. 431.
6. Hartmann: Bull. et mém. Soc. de Chir., Paris, April, 1899.
7. Coffey: Philadelphia Med. Jour., Oct. 11, 1902.
8. Gelpke: Arch. f. klin. Chir., Berlin, 1906, lxxx, 1021.
9. Eve: Brit. Med. Jour., London, 1906, i, 784-786.

omentum, gastrophrenic ligament and the right lobe of the liver. The table was then elevated to the Trendelenburg position and the stomach displaced further downward and out of the wound by means of gauze sponges. This act caused the gastrohepatic omentum to be slightly stretched and separated from the underlying structures, which permitted an accurate determination of the length of the omentum and very much facilitated the operative manipulations. The gastrohepatic ligament was found to be composed of the two layers of delicate peritoneum, increasing in thickness and strength toward the right or pyloric end of the stomach, and above at the attachment of the liver. The gastrophrenic ligament appeared as a few thin connective tissue bands supporting the cardiac end of the stomach. Retractors were introduced and the liver held aside by placing a flat gauze sponge beneath a retractor. Three rows of interrupted silk sutures were then introduced so as to plicate and thus shorten the gastrohepatic omentum in the following manner: The first row, beginning in the gastrophrenic ligament and extending across the gastrohepatic ligament to a point almost opposite the pylorus or hepaticoduodenal ligament, was introduced so as to form a plication in the center of these ligaments, and included from above downward or vertically about 4 cm. of tissue. They were small mattress sutures including sufficient of the delicate tissue, gathering the tissue up in the grasp of the curved needle, where no blood-vessels were present, to insure against their tearing out. Four or five sutures, about one inch apart, were introduced from right to left and caught in a hemostatic forceps. The second and third row of sutures were introduced in a similar manner, the third row including the tissue of the ligament near the attachment to the liver above, and below grasping the tissue just above the blood-vessels of the lesser curvature of the stomach. The sutures were strictly confined to the normal ligamentary supports and the distance between the rows from left to right was increased with the length of the ligament, being greater toward the right. I need not point out that the important blood-vessels in relation with the right border of the ligament are to be carefully avoided, so that they are not injured or constricted in the suturing. The gauze sponges were then removed, the stomach brought into the wound and carried upward toward the diaphragm as the first, second and third row of sutures were tied. The stomach, particularly the pyloric end, was thus elevated to about normal position. If, after the sutures were secured, there remained any portion of the stomach abnormally low or there was a depression or kink along the lesser curvature, this was corrected by an additional suture. The abdomen was then closed by the layer suture method, combined with two or three silkworm gut through-and-through sutures.

The plan of operation described is that followed in the early cases in which I have operated, with the belief that it was necessary, in order to gain a broad surface of adhesion and a strong support, so as to prevent cutting out of the sutures and a recurrence of the displacement, that the ligaments be shortened by folding on themselves and that they be secured with three rows of sutures. With growing experience, however, I have very much simplified the operation in the last eighteen cases by introducing but a single row of sutures from above downward across the gastrohepatic omentum. The strength of the suture support and attachment above has been increased by introducing each suture through the distinctly thicker and stronger one-fourth of tissue forming the attachment of the ligament to the liver. The gastrohepatic ligament at the attachment to the liver for a distance of one-fourth to one-half inch is found formed into a strong, white connective tissue band, a structure holding the suture without danger of cutting out and forming a fixed point above against which to draw the lesser curvature of the stomach.

The first suture is introduced, beginning above, in the strong tissue of the attachment of the ligament to the liver, that described, the needle including considerable tissue, and then grasps the more delicate tissue at short intervals from above downward until a position just above the gastric vessels is reached at the lesser curvature. Four to six such sutures are inserted in this manner, being perhaps an inch apart.

The suturing toward the right, opposite particularly the prolapsed pyloric end of the stomach, is carried as low and as high in the liagment as is possible, well avoiding the vessels and ducts at the right border, so as to insure the greatest elevation where it is most indicated.

When these sutures are secured the stomach, the lesser curvature, is carried in contact or almost in contact with the under surface of the liver at the attachment of the gastrohepatic ligament and is firmly fixed in this position. It is apparent to the operator at the termination of the operation that it would require considerable tearing force to displace the organ again and it is evident that a recurrence of the ptosis cannot occur.

The modification also secures a much higher position of the stomach than was possible by the original plan of suturing. I seek to have the greater curvature of the stomach above the umbilicus, at the point as demonstrated by the *x*-ray in the normal position of the stomach.

The operation is easily accomplished in twenty to thirty minutes, and in no instance has been associated with any degree of shock. There have been no deaths or complications following. The convalescence is easy, the patients being particularly free from nausea and vomiting, and the suffering is not greater than after a simple exploratory celiotomy. The bowels are opened at the end of forty-eight hours by enema. The patient is kept on small amount of liquid food for two or three days, then given semiliquid food and quickly solid food. He is confined to bed in the recumbent position for two weeks.

The principle of this operation is that by placing interrupted sutures from above downward through the gastrohepatic omentum, or gastrohepatic and gastrophrenic ligaments, the normal ligamentary supports of the stomach are shortened and the stomach elevated to normal position without in the least disturbing the physiologic mobility of the organ. With the elevation of the stomach any ptosis of the transverse colon is likewise corrected to a considerable—I believe sufficient—extent.

A report of the first operation performed by this method was made before the Fellows of the College of Physicians of Philadelphia by Dr. Alfred Stengel and myself on April 5, 1899. I published accounts of further experience[10] in February, 1903, and October, 1904.

Since the description of my first case Bier[11] of Greifswald, Germany, has reported four cases in which the operation was done in a somewhat similar manner. Three or four sutures were placed through the gastrohepatic ligament from left to right so as to form two plications, one above the other, in the ligament. The first suture attached the serosa and muscularis of the pyloric end of the stomach, at the lesser curvature, to the capsule of the liver, the other included only the ligament. Also, in two of the cases the shortening of the gastrohepatic ligament was supplemented by the passing of two sutures through the serosa of the lesser curvature of the stomach and then through the capsule of the left lobe of the liver.

10. Beyea: Univ. Penn. Med. Bull., February, 1903; Am. Med., 1904, viii, 629-634.
11. Bier: Deutsch. Ztschr. f. Chir., 1900, lvi, 374.

In the operation of Duret, Rövsing and Gelpke the stomach was firmly fixed to the anterior abdominal wall by the passing of sutures through the serosa and muscularis of the stomach and the various layers of the abdominal wall. The fixation of the stomach to the anterior abdominal wall by adhesion, particularly to the extent practiced by Rövsing, would seem, at least in part, to destroy or hinder the physiologic mobility of the organ and result, in a greater or less number of cases, in a disturbance of the function of the organ. Likewise there is the danger of the production of the very painful affection frequently seen associated with adhesions to this organ.

The suturing of the lesser curvature to the liver and the greater curvature to the anterior abdominal wall, as practiced by Eve and LaPlace, is subject to the same criticism. Further, in a patient so operated on who afterward came under my care, pneumonia developed as a postoperative complication, and from the constant coughing a large hernia of the stomach resulted. That the greater curvature of the stomach was anchored to the abdominal wall below the incision, I believe, was an important factor in the production of this ventral hernia.

The operation of Davis, attaching the lesser omentum near the upper curvature of the stomach to the abdominal wall, would seem a better procedure, but the stomach would be distorted and abnormal adhesions formed.

The securing of the greater omentum at a point just below the transverse colon to the anterior abdominal wall one inch above the umbilicus, the operation of Coffey, elevates the stomach to a considerable extent and relieves any dragging on the stomach from below caused by the transverse colon and great omentum. Another point of possible value, according to Sailer and Clark, is that this operation corrects the associated ptosis of the transverse colon, and that it relieves the constipation from which they believe these patients suffer. The operation, however, markedly changes the anatomy of the stomach and transverse colon, and, since an artificial adhesion is formed between the great omentum and anterior abdominal wall, there would be the danger of more extensive adhesions being formed than is planned, involving the transverse colon and stomach and resulting in an incurable condition. Intestinal obstruction is a very possible complication. I am, however, inclined to believe that the operation might be of value and warrantable where there existed extreme hepatoptosis, the liver being so low in position that, although the lesser curvature of the stomach were brought in contact with the under surface of the liver, the stomach would still remain vertical in position and the duodenal kink persist to cause symptoms. Here it would be a more simple operation than any hepatopexy devised.

As to the question of ptosis of the transverse colon causing constipation and necessitating greater elevation of the colon than is gained by bringing the lesser curvature of the stomach in contact with the liver, I have sought information by written communication. I have replies from 23 of the patients operated on. Seven state that they did and 16 that they did not suffer from constipation before operation, and 6 do and 17 do not now suffer from constipation. Therefore, in my experience, constipation has not been a sufficiently prominent symptom to warrant the additional operation, certainly not that of resection of the colon, as is recommended by Clark. I did elevate the colon by this method in one instance, because the patient complained of pain over the prolapsed colon after the stomach had been restored to position. In another case in which marked ptosis of the colon existed, the kink was corrected by simply narrowing the gastrocolic omentum over this area, thus bringing the colon almost in contact with the stomach. I have, however, noted no special advantage of the operation.

Regardless of the theoretical criticisms of the fixation operations, it is to be noted that from the published reports of the operators who have performed them, in a total of 82 cases, no such disturbances of function of the stomach or other complication is mentioned, except in an early case of Rövsing's. Rövsing, now with an experience of 75 cases, 50 of which he has had an opportunity to observe from one to eight years, asserts that none of his patients have after operation had retention of food or have developed a disturbed function of the organ. Nyrop,[12] however, discredits the good results reported by Rövsing, saying he has observed and reported cases in which such adhesions did produce pain. I have had communicated to me verbally the history of one such case in which the patient, because of the fixation operation, became a hopeless invalid. Thus, even with the small amount of data available, it is evident that the forming of adventitious adhesions to a hollow viscus, directly or indirectly, is bad surgery and conducive to harmful results.

The operation I have devised, as I have said, simply shortens the anatomic ligamentary supports of the stomach, elevates the organ to a position where it is in contact with the liver at the point of attachment of the gastrohepatic ligament, and thus the anatomic conditions of normal mobility and physiologic function are completely preserved. The operation must, therefore, be considered anatomically, physiologically and surgically ideal.

Since the report of the first operation in April, 1898, I have operated in 25 additional cases; in all I have performed the operation 26 times. Martin, employing this method, has operated in 5 cases, Noble and William Mayo each 2, and Hodge 1. Martin, in one of his cases, also performed the Coffey operation, and in both of Mayo's cases Finney's pyloroplasty was performed. Including the four cases in which Bier operated, the operation has been performed 39 times.

All of the patients coming under my care had suffered with the characteristic and severe symptoms of gastroptosis for from three to fifteen years. In 4 a right prolapsed kidney had been operated on without relief of symptoms, and in 3 cases a floating kidney still exists, not causing symptoms after the reposition of the stomach. Regarding the presence of hepatoptosis I am unable to make any definite statements. Of the last 14 cases the skiagraph showed some ptosis in 10, and in one the descent of the liver was extreme. In this latter case, skiagraphed several months after operation, the stomach was seen with its lesser curvature well up beneath the liver, but still in a prolapsed position because of the hepatoptosis. I believe that more or less hepatoptosis was present in all of my cases. Dr. Henry Pancoast of the *x*-ray department of the University of Pennsylvania, suggesting that the greater part of the ptosis of the liver is due to a right lateral downward rotation of this organ, in the last two cases in which we have operated I have sought to correct this by suturing

12. Nyrop: Ann. de chir. Gastro-Intest., April, 1907.

the round and falciform ligaments to the upper end of the abdominal incision, thus carrying the liver upward and toward the left. No second skiagraphs have up to the present time been made in these cases.

Twenty-five of the patients were greatly emaciated, weighing between 77 and 120 pounds. In 16 the upper curvature of the stomach was outlined by means of the skiagraph or by inflation and auscultatory percussion one and a half to two and a half inches below the umbilicus, in 9 three inches below the umbilicus (the stomach reaching well into the pelvis), and in 1 one inch below the umbilicus. The latter was a small tubular stomach, vertical in position, the *x*-ray showing a marked kinking in the duodenum. In three an associated dilatation of the stomach was diagnosed, but, as is common, the dilatation was not appreciable at operation. In two there was a pronounced dilatation of the stomach demonstrable at operation. In none of the cases was there present a diastasis of the recti muscles or great relaxation of the abdominal walls, although seven of the women had borne children. All of the patients operated on suffered from retention and fermentation of food, were chronic invalids and most of them incapacitated for any occupation or social duty. Operation was determined on in every instance only after a long course of medical and mechanical treatment had been carried out by a competent internist and the treatment had failed to give permanent relief. Several had been transferred to the care of an internist for the purpose of giving the medical treatment a thorough trial. In every instance the patient had been treated faithfully with medicine, hygiene, diet, bandaging, binder or a corset, and the majority had had a six weeks' rest cure. They were all willing and anxious because of their suffering to risk the danger of operation for the sake of a possible cure.

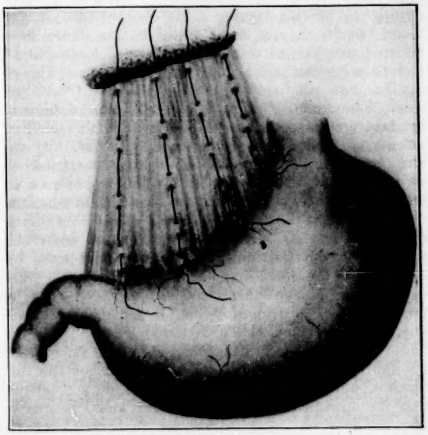
In one instance in which the stomach was prolapsed so that the upper curvature was two inches below the umbilicus and the organ dilated to perhaps twice its normal size the woman was emaciated until she weighed but 77 pounds. Further, she apparently suffered from autointoxication as a result of the gastric and intestinal fermentation process, to such a degree as to produce every two or three weeks a rise of temperature reaching 102 to 103 F. She was in extreme condition, the operation dangerous, but demanded by the family physician. This patient has gained 30 pounds in weight, has become pregnant and borne a child since, all symptoms have disappeared and she enjoys perfect health. Six of the patients were males, one a physician who had given up practice and had devoted several years of his life to seeking relief in various parts of the country.

The 26 patients on whom I have operated have now been observed from four weeks to eleven years. In order to gain an accurate report as to the result of the operation I have recently communicated with these patients by circular letter. A reply was received from all.

In every instance, except Patients 11 and 18 and one patient recently operated on, the improvement in health had been most remarkable and the relief of symptoms complete. The dyspeptic and neurasthenic symptoms are entirely relieved, there is no retention or fermentation of food, and food of any character is taken without restriction. All have gained in weight from 8 to 40 pounds, the average gain in weight being 20 pounds. The gain in weight and state of improved health has been maintained regardless of the time that has elapsed since operation.

Patient 11 was operated on in June, 1907. She immediately gained ten pounds in weight and was relieved of her symptoms. She then relapsed into the old condition, suffering as much as before operation and now practices lavage daily and before going to sleep at night it is necessary that her physician replace a prolapsed right kidney. Preceding operation she was under the care of Dr. John K. Mitchell at the Orthopedic Hospital, who carried out a thorough rest-cure and medical treatment without the least benefit. I had previously refused to operate on this woman, but, it being again suggested by Dr. Mitchell because of the failure of the rest cure, the operation was carried out, although I felt at the time that there was little chance of its giving relief. This also is the case referred to in which there was an extreme hepatoptosis.

Patient 18, operated on in March, 1908, a young man of no occupation, is free from symptoms referable to the stomach and transverse colon, both being elevated, and



Suture of the gastrohepatic omentum to secure elevation of the stomach in gastroptosis.

has gained 10 pounds in weight, but still complains of pain in the lower abdomen. It is his belief that this pain is due to a separation or tearing away of the mesentery of the small intestine, following a severe strain.

In Case 4 the patient was markedly benefited for a time, and then after nursing two sisters through a course of typhoid fever became profoundly neurasthenic; after a rest-cure she is again enjoying good health.

These three cases are simply instances in which there exists, associated with the gastroptosis, essential neurasthenia, as occurs with other conditions and disease. The patients are little, if at all, benefited by medical or surgical treatment and are sometimes made much worse by the latter.

The patients operated on by Martin gained from 20 to 30 pounds in weight and are relieved of their previous symptoms. Those operated on by Noble, I am told, are relieved of their symptoms. The patient whose case was described by Hodge I saw a short time ago and

she has gained in weight and has good health. The four patients operated on by Bier have all gained in weight, from 11 to 25 pounds, and, he states, enjoy good health.

The immediate and lasting complete relief of symptoms, improvement in nutrition and gain in weight in all but two of the 39 patients operated on by simply shortening the gastrohepatic omentum would prove that the gastric symptoms were induced by the abnormal position of the stomach in gastroptosis, and that the neurasthenia is, as a rule, not an essential but an induced condition. The completeness of relief and remarkable benefit following invalidism which had existed for years in 95 per cent. of the cases, the simplicity of the operation (which restores the stomach to normal position without removal of tissue or the formation of abnormal adhesions) and the fact that it is practically free from danger (we would estimate the danger as not being more than one-fourth of 1 per cent.) must strongly recommend this surgical treatment in every case of gastroptosis in which the suffering is great.

It has been my experience that in no class of cases coming to me for treatment do the patients receive more benefit or are more grateful than those here referred to. The mechanical and medical treatment at best only secures partial relief of symptoms. (The *x*-ray has now positively determined, as stated by Pancoast, Sailer and Worden,[13] that no form of binder, bandage or corset elevates the stomach to the smallest extent.) It entails constant treatment, diet, hygiene and the wearing of a cumbersome bandage or irritating adhesive straps, while the operation promises at once to restore completely and permanently the patient's health.

It is true that the patients thus far operated on represent but one class, those with gastroptosis occurring independent of relaxation of the abdominal walls or diastasis of the recti muscles. Experience alone can teach what influence the operation can have where a relaxation of the abdominal wall is active in the production of the displacement of the stomach. I believe, however, that the new attachment would be sufficiently strong to maintain the organ in normal position and the result would be quite as satisfactory. I do not believe that the operation devised by Webster would be necessary.

In cases in which there exists an associated and even marked dilatation of the stomach, as in two of our cases, the dilatation is dependent on the gastroptosis with kinking of the duodenum and motor insufficiency of the gastric walls, and therefore with the relief of the kink or obstruction through the elevation of the stomach the stomach drains itself, the motor activity is restored and the dilatation must soon disappear. Such is amply proved in my case in which dilatation was extreme, caused autointoxication and the patient after operation gained 30 pounds in weight. The stomach has returned to normal size.

I see no indication for the combination of pyloroplasty with elevation of the stomach or the performance of pyloroplasty alone in gastroptosis, unless there be present a true organic stricture of the pylorus. The operation of gastrojejunostomy as practiced by Walker, Hammer and Deaver I would consider unnecessarily mutilating, dangerous and in no sense indicated in this disease.

I would again call attention to my experience that in performing the operation the stomach cannot be carried too high upward beneath the liver to relieve the duodenal kink and compensate for the coexisting ptosis of the liver.

The operation here described has been subjected to a certain amount of criticism by three writers. It is stated by Rövsing and Eve that the gastrohepatic omentum is such a frail, delicate tissue that sutures cannot be introduced into it, that even though sutures were thus introduced they would cut out and the displacement of the stomach recur, and that the operation therefore is an impracticable one. It likewise appears that Bier, Noble and LaPlace in performing the operation were not satisfied to rely on the simple suture of the gastrohepatic omentum alone, but supplemented the operation by passing sutures between the lesser curvature of the stomach and capsule of the liver, or greater curvature and abdominal wall. The gastrohepatic omentum is thin and delicate; in two of our cases particularly it was very thin, but, as far as my experience goes, in all 26 cases there has been no difficulty in finding sufficiently strong tissue not only to hold the sutures but to make a much more than efficient elevation and attachment of the organ, particularly with the modification here described. As stated, in every instance it would have required much tearing force at the termination of the operation to separate the stomach. A still better proof is the fact that there have been no recurrences.

Rövsing and Deaver have offered the criticism that, because of the presence of numerous blood-vessels, particularly veins, in the gastrohepatic omentum, these vessels would easily be injured or constricted and the operation made a dangerous one. The field of operation is plainly before the operator, the gastrohepatic omentum transparent, and therefore these vessels are readily seen and avoided, and only a very careless operator would endanger the life of his patient through such complication. Also, no important vessel is ever constricted if the operation is carried out with ordinary care.

Finally, I wish to point out that there exists in gastroptosis a physical displacement of a most important organ; the whole cause of the patient's illness results from this mechanical displacement; or in a general visceral ptosis it is the stomach which causes the greater part of the symptoms. The gastromotor insufficiency, the dilatation and their symptoms are the direct result of the malposition of the stomach. The medicinal and mechanical treatments give relief in a large percentage of cases, the severe symptoms disappear and, I might say, the patients are comfortable. This relief is gained by constant careful feeding, regulated rest after taking food or the full rest treatment and the wearing of a bandage or application of adhesive straps. The binder gives relief by increasing the intra-abdominal pressure and not by elevating the stomach. With the removal of the binder, the taking of food of normal amounts and character and the assuming of any occupation, the symptoms gradually return, for the cause of the suffering is in no sense relieved. At least this has been my experience in every instance in which the patient was first referred to an internist for treatment. Therefore, if the suffering of the patient is great, I can only come to the conclusion that the surgical treatment is the only logical one.

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13. Worden: Tr. Coll. Phys., Philadelphia, 1906, Series 3, xxviii, 151-196.

SURGICAL TREATMENT OF CHRONIC ARTHRITIS

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In considering the surgical treatment of chronic arthritis it is of prime importance to distinguish the different types of arthritis, because I believe that a remedy which may be very beneficial in one type may be useless in another and even harmful in still another. I believe that much of the confusion and many of the failures can be traced to the lack of careful differentiation. Before the time of the discovery of the pus micro-organisms by Ogston, the tubercle bacilli by Koch and the gonococcus by Neisser this subject was in a chaotic condition, and even now much confusion exists in the minds of most medical men.

Within the limits at my disposal it is manifestly impossible to discuss in detail all the different types of chronic arthritis. I have consequently concluded to pay especial attention in these remarks to a consideration of one of the most common, distressing and fatal types, namely, arthritis deformans. Arthritis deformans is most commonly confused with septic, tuberculous, gonorrheal and syphilitic arthritis, gout, flat-foot and chronic articular rheumatism.

As stated above, in order that we may treat this affection satisfactorily, we must, first of all, have a fairly clear conception of each of these forms of arthritis, so that we may differentiate this particular form from the others in at least the great majority of cases which may present themselves to us.

In septic arthritis the onset is more acute; it is always accompanied by considerable pyrexia, usually with a chill, nausea, vomiting, malaise and severe pain; and, while occasionally several joints are involved simultaneously, the number affected in the end is not so great as in most cases of arthritis deformans. If the infection is due to one of the staphylococci, there is usually marked effusion into the joint, local heat, redness, pain and loss of function. The joint affection is probably always secondary to a primary affection, which can generally be located. There is always a marked leucocytosis.

I mention staphylococcus arthritis because I have had a number of chronic cases in which on aspiration I found staphylococci in pure culture in one or more of the joints, cases which had previously been diagnosed as arthritis deformans by capable observers.

Tuberculous arthritis, while running a chronic course, is distinctly more acute than arthritis deformans, more painful, at the onset accompanied with more fever, usually mono-articular, and, if when the patient first comes for examination several joints are involved, the history will practically always show that a considerable interval existed between the involvements of the different joints. There are other points, such as the von Pirquet cutaneous reaction, opsonic index and many more, which might be cited, but if reasonable care is practiced a mistaken diagnosis between tuberculous arthritis and arthritis deformans should not occur.

With gonorrheal arthritis the danger of a mistake in diagnosis is considerably greater, as I have seen several old cases of gonorrheal arthritis which had been repeatedly diagnosed as arthritis deformans. Gonorrheal arthritis is generally mono-articular, sometimes multiarticular and only rarely panarticular. These latter cases are sometimes confusing, but the history will always bring out the fact that the onset was sudden and severe and that all the joints were involved simultaneously or nearly so. Often a history of gonorrheal infection can be obtained and sometimes the specific micro-organism can still be found on careful search.

I have never seen a case of syphilitic arthritis which could possibly be mistaken for arthritis deformans, but the possibility of such an error is mentioned by several writers, and I believe that on careful examination a sufficient number of unmistakable luetic signs and symptoms, the great number of which I need not cite here, can always be found to make a differential diagnosis between syphilitic arthritis and arthritis deformans. If any doubt exists, a careful course in antiluetic remedies should be instituted before a final diagnosis is made.

Several authors make the statement that gout is sometimes confused with arthritis deformans. If one takes the trouble to get a careful history, this mistake can always be avoided, because in gout we shall always obtain a history of one or more severe acute attacks with intervening periods of complete remission.

While it is true that an abduction deformity simulating flat-foot is often found in the later stages of arthritis deformans, simple flat-foot, no matter how severe, should never be confused with arthritis deformans. I have seen this mistake made several times, but even a superficial knowledge of these two affections should make this error impossible.

The principal source of confusion seems to arise from the fact that even prominent authors and clinicians fail to differentiate between that form of chronic arthritis which develops subsequent to acute articular rheumatism and true arthritis deformans; thus, for instance, Strümpell[1] says that a clear differentiation between the two cannot be made. To this statement I cannot subscribe; on the contrary, I believe that arthritis deformans is a disease as distinct from chronic rheumatism as is syphilis from tuberculosis and as easily distinguished from it. While we shall all agree that it is sometimes impossible to make a differential diagnosis between syphilis and tuberculosis, still we would scarcely describe the two affections in a text-book on internal medicine under the same heading; and yet, I believe, we should be just as much justified in doing this as are the text-book authors who describe chronic rheumatism and arthritis deformans under the same caption.

As stated above, this differentiation is very important because the two types of arthritis respond to entirely different treatment. True chronic articular rheumatism is always secondary to acute articular rheumatism, of which there may have been one or more attacks, each acute attack being ushered in by a severe illness, great pain, pyrexia, swelling, redness and tenderness of the affected joints. The joints to be affected during any one attack are usually all affected at the same time. Arthritis deformans, on the other hand, is insidious in its onset, chronic from its very beginning, as several years may elapse from the appearance of its first symptoms until it causes any considerable degree of disability. Thus, for instance, I have in mind a case in which the first symptoms appeared in 1892 and in which serious symptoms did not appear until 1897 and the disease had not reached its height until 1899.

While arthritis deformans may primarily be limited to one joint and often begins in one or two joints, one joint after another usually becomes involved until all or nearly all of the movable joints of the body are affected.

1. Strümpell, Adolf: Lehrbuch der speciellen Pathologie and Therapie, Ed. 15, ii, 517.

At this point I wish to call attention to a fact which will often give the key to the right diagnosis, namely, that within the first two or three years of the disease it is usually possible to find one or more joints just beginning to be affected, others in which the inflammatory process is at its height, and again others that have reached the quiescent or terminal state with its atrophies, exostoses and contractural deformities.

In chronic articular rheumatism are found the final results of an acute and subacute inflammation of the synovial membrane with little involvement of the extra-

Fig. 1.—Arthritis deformans of medium degree of severity, two years after the beginning of the onset.

articular structures, and if deposits occur they are usually found more or less free within the joint capsule. In arthritis deformans the process seems to be largely confined to the joint cartilages and the extra-articular structures, with little, if any, involvement of the synovial membrane. This difference in structural involvement results in the production of two utterly dissimilar, but very characteristic pictures. In arthritis deformans the involvement of the cartilages and the extra-articular structures causes contractures, and the joints become permanently rigid and fixed, as illustrated in Figures 1 and 2. Thus Figure 1 is taken from a case of arthritis deformans of medium degree of severity two years after the beginning of the onset. In three of the joints the process is at its height, while in another the terminal contracture is beginning to develop. Figure 2 is taken from an old case showing these terminal contractures still more fully developed. It will also be noted that quite a number of these terminal contractures are contractures of hyperextension, a form of contracture which I have never seen in a case of chronic articular rheumatism. Figure 3 represents a case of chronic articular rheumatism.

On examining this last picture it will be noted that all of the fingers are in a position of slight abduction and slight flexion and none of the joints in hyperextension. If such a hand is carefully examined the joints will be found flaccid, the capsular ligaments longer and looser than normal; there will be no bony ankylosis and the deposits found will be within the synovial membrane.

Patients with chronic articular rheumatism are greatly benefited by hot baths, sweats and Bier's active hyperemia, while arthritis deformans patients are made markedly worse by these remedies.

The differences in the history of development, the characteristic deformity and the therapeutic test make a differential diagnosis possible in practically every case.

I regret exceedingly that I am unable to furnish absolutely positive proof as to the etiology of arthritis deformans, but I believe that it is the result of long-continued autointoxication as distinguished from single, repeated or long-continued autoinfection, as illustrated by nearly all of the other acute and chronic inflammatory joint affections. In other words, so far as the joint process itself is concerned, I believe that it is a chemical rather than a microbic process. I fully realize that in the present state of our knowledge, or rather lack of knowledge, of *intra-vitam* chemical tissue changes the preceding statement is not susceptible of positive proof. I wish, however, briefly to outline some of the facts and observations and deductions on which my belief is based.

So far as I am able to determine, there are no authentic cases on record in which a specific micro-organism, or, for that matter, any micro-organism has been found in true cases of arthritis deformans. On careful analysis of the reported cases of chronic arthritis in which micro-organisms have been found in the joints it is usually easy to determine that the affection was really not a true arthritis deformans, but one of the other types of chronic joint involvement. So far as I am able to determine, patients with true arthritis deformans never show leucocytosis; they never have marked pyrexia, not even as

Fig. 2.—Well-advanced arthritis deformans, showing the terminal contractures. Note especially the hyperextension of some of the joints.

new joints become involved, unless they are suffering at the same time from some intercurrent febrile affection. There is little, if any, increase in synovial fluid, the swelling being confined almost exclusively to the capsule and periarticular tissues.

The first case that led me to differentiate between a chemical and microbic process was that of a patient who was suffering from very severe hemorrhoids and numerous rectal fissures, who admitted that she rarely had a bowel movement oftener than once a week and frequently

went two weeks. For several months she absolutely refused to take a cathartic from dread of the pain which a bowel movement would cause. She finally submitted to an operation, and the material that was found in the rectum at the time of operation and that was subsequently evacuated by the use of cathartics, for foulness and stench beggared all description. I have never seen anything like it since. I also recall three cases of coprostasis due to adhesions from old appendices and one case of beginning arthritis deformans in a case of very badly lacerated, ulcerated and eroded cervix. The three cases of arthritis deformans complicated with chronic appendicitis were very different from acute articular rheumatism following acute appendicitis, as first described by Finney and now familiar to all of us.

To my mind there is absolutely no evidence in favor of the supposition that arthritis deformans is of a nervous origin. The few cases that have come to autopsy and have been subjected to careful microscopic examination show no changes whatever in the nervous system, and, while the great majority of organic nervous diseases, excluding tumors, occur in males, the great majority of cases of arthritis deformans occur in females. These are facts which should surely make us slow in ascribing arthritis deformans to some obscure nervous origin. The repeated statements in text-books that it is probably due to a nervous lesion recalls the fact that for decades past when authors were unable to find any plausible explanation for a disease they were prone to ascribe it to a miasm or to some obscure nervous lesion,

Fig. 3.—Well-advanced chronic articular rheumatism.

and I believe that this supposed nervous origin of arthritis deformans is only a similar superstition.

Even a very superficial consideration of the methods of treatment that have been in vogue in the past brings out some very startling and interesting facts, many of which would be amusing, if they were not pathetic. I will not cite any of the remedies that have been recommended heretofore, because I believe the less one knows about them and the quicker one forgets them, the better it will be for ourselves and our patients. A rather extensive perusal of the literature on arthritis deformans, which, because of the great amount that has been written, must necessarily be incomplete, gives the information that one hundred and twenty-seven different remedies are being recommended for this condition. The number of times that I found each of these remedies advised varied from one to forty-two. Many are only tentatively suggested; again others are very strongly recommended. This is a condition of affairs very similar to that which existed in the treatment of diphtheria prior to the introduction of antitoxin, and the fact that all of these remedies are recommended simultaneously in the literature of a decade is rather strong presumptive proof that none of them are of any real value, because

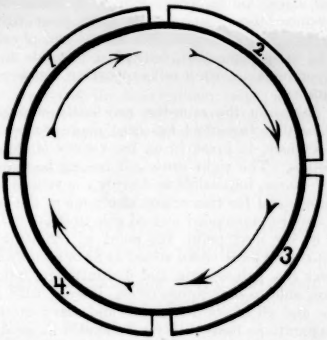

Fig. 4.—Diagram showing graphically the components of the vicious circle.

if any one approached a specific in its action the others would soon be discarded entirely.

To me a case of arthritis deformans presents the following picture: We have, to begin with, some factor which causes articular and periarticular irritation. This, in turn, causes more or less constant pain, which results in malnutrition and loss of resistance. If the process is not brought to a halt, this soon results in a vicious circle, which I have tried to illustrate by a schematic drawing (Fig. 4), one factor causing the next until the patient finally becomes so exhausted that she or he becomes a bed-ridden cripple and finally an easy prey to an intercurrent affection. An analysis of the remedies recommended gives the impression that students of this disease have more or less vaguely comprehended the situation, but because of the lack of definite knowledge as to its etiology their attempts to relieve it have been practically futile. Here, as in all other affections, we should make every effort to prevent the development of the disease, and I believe that this is actually being done and many cases of arthritis deformans are being prevented by surgeons all over the country every day when they remove foci of chronic infectional obstruction, thus preventing chronic toxemia.

Next in importance to prophylaxis is the early recognition of the cause and its removal if possible. I now recall three early and yet typical cases of arthritis deformans, the further progress of which was stopped by the prompt removal of offending appendices; two very advanced cases in which the patients were distinctly benefited by the excision of the affected appendices, but in which the disease had advanced so far that only a relative cure was accomplished; one patient suffering

from recurrent appendicitis and hemorrhoids, who refused operation and has become progressively worse; one advanced case, the patient suffering with hemorrhoids and anal fissures, in which the disease was arrested and great improvement resulted after the rectal trouble was relieved.

If the case is an advanced one in which the original cause has ceased to be operative or in which we are unable to locate the primary lesion, it becomes necessary to devise some other means by which we can obtain at least partial relief. For a number of years I have made a critical study of this and allied affections, and have treated a number of such cases with what I consider reasonable success. I believe that I am now in a position to outline a plan of treatment which will relieve these patients of their most distressing symptoms, save them from the mental and physical distress of being dependent, bed-ridden invalids and make them comfortable, often self-supporting members of the community.

In analyzing the remedies previously employed one will find that the effort has been made, consciously or unconsciously, to break in on the vicious circle at various points. The right cause not having been found, it was, of course, impossible to destroy the vicious circle at this point, and for this reason also none of the remedies previously recommended seemed able to break the vicious circle at the next point, the point of irritation of the joint itself, so most of the remedies have been directed at the next two points, pain and malnutrition, but, so far as I am able to determine, rarely, if ever, with success. Opium and all of its derivatives and many of the coal-tar preparations have been recommended as anodynes in this affection, but we all know that while certain of these remedies will temporarily relieve distress they all further impair the nutrition and thus make the patient less and less able to bear the subsequent pain; consequently they make the patient worse rather than better and have been generally discarded by the best practitioners, except in the extreme terminal conditions of the disease. Many of the remedies are given with the hope of improving the general nutrition, but it is impossible to improve the nutrition of a patient so long as she is continuously suffering pain. I know of no one thing that more surely reduces the resistance of a patient and prevents improvement in nutrition than does long-continued pain. This fact convinced me that if we could by some natural means—that is, without the use of opiates and other drugs—stop the pain, we could then secure good nutrition and thus break in on the vicious circle and save our patients.

It occurred to me that the one way we could accomplish this was by securing absolute rest of the affected joints, but this was not so easy of accomplishment, because in some of these cases nearly every movable joint sooner or later becomes affected and I have had several late cases in which practically all of them were affected simultaneously. An additional obstacle was the fact that most of these joints are partially ankylosed, with either flexor or extensor deformity with one or the other group of muscles at a distinct mechanical disadvantage, and the mere application of a retention dressing, no matter how secure or rigid, would not relieve the muscle spasm completely so long as this deformity was allowed to persist. During my work with tuberculous joints I discovered that the relief of pain in an inflamed joint involved the recognition of two separate and distinct principles: first, the application of an absolutely rigid, close-fitting retention dressing; second, the application of this dressing with the limb in such a position that the antagonistic muscles surrounding the joints are in absolute equilibrium, so that the extensors shall have no mechanical advantage over the flexors nor the abductors over the adductors. If this ideal position is secured by absolute immobilization, pain in any chronically inflamed joint will cease from within a few hours to a week. The treatment of these old cases of arthritis deformans in which the above vicious circle has been fully established and in which the primary cause can either not be found or has become non-operative (as I believe it has in many cases), practically resolves itself into the relief of pain by natural means without the use of opiates and other drugs, and consists in the application of a snug, firm, absolutely immobilizing retention dressing with the antagonistic muscles at equilibrium. If the contractures are very pronounced and the limb or limbs cannot be brought into the desired position without causing extreme pain, the patient is anesthetized, the contractures broken up, and if necessary the tendons lengthened by tendoplasty, the limbs placed in plaster-of-Paris dressings in the desired position and allowed to remain there until the pain and irritation have entirely subsided.

If it has been necessary to use a great deal of force or to do an open operation a plaster-of-Paris mold is applied over cotton. When the reaction has subsided or the wound has healed, a new plaster-of-Paris mold reinforced with basket splints and wheat gluten bandages is applied over stockinet. In this manner a splint can readily be constructed so that it will be comfortable, absolutely rigid, light and durable, the four essentials in a retention dressing of this kind.

For immobilizing the joints of the upper extremity a small pad is placed in the axilla and a shoulder-cap applied; this is fastened to the chest with a soft roller bandage. The elbow is placed at a little less than a right angle, the forearm rotated inward slightly, so that the anterior surface looks directly toward the body, the thumb slightly extended, the fingers held perfectly straight and a mold applied in this position. For immobilizing the hip I use a plaster-of-Paris spica extending from the umbilicus to the pubis and to within an inch above the knee with the thigh abducted 10°, ventral flexion 5°. The knee is immobilized at an angle of 175° and the ankle at 85°.

The above-described positions are chosen because they are the ones which secure muscle equilibrium and fortunately at the same time are also the positions giving the muscles the best opportunity subsequently to limber up the joints and in case any of the joints should be permanently ankylosed it leaves the limbs in the most useful position.

What now is the prognosis of these cases thus treated as compared with the prognosis in the past? So far as I am able to determine, patients with true arthritis deformans treated by the usual methods in vogue in the past have generally become progressively worse, so that they have become bed-ridden invalids in from three to seven years after the onset of the disease. During all of this time they have suffered a great deal of pain; a considerable part of the time they have been unable to support themselves, and the last year or more they have required the constant personal care and attention of one or two attendants. When they once become bed-ridden they become utterly helpless, require at least one personal attendant and are either a great financial burden

to their relatives or to the community. If the treatment above outlined is instituted early, if the cause can be found and removed, this unfortunate condition can often be prevented, as the following brief history will illustrate:

CASE 1.—On March 14, 1907, a woman, aged 47, presented herself suffering from beginning arthritis deformans which began with an involvement of the proximal phalangeal joint of the ring finger of the left hand three years previously. At the time of examination most of the metacarpophalangeal and phalangeal joints of both hands were involved, also wrists and knees. The patient's complexion was muddy and anemic; nutrition fair. In the history she gave the information that nineteen years previously she had had an attack of typhoid fever. The patient was examined repeatedly with negative results. Finally one day, on examining her, a tenderness was discovered at McBurney's point. On closer questioning it was found that she occasionally felt pain in this region, and on analyzing the history carefully it was determined without question that the previously mentioned attack of typhoid fever had really been a severe unrecognized attack of appendicitis. The appendix was exposed by a McBurney incision, was found 7 cm. in length, curled up, universally adherent, lumen markedly constricted near its proximal end, the distal end filled with fecal matter. The appendix was removed in the ordinary manner, the patient made an uneventful recovery so far as the operation was concerned, her nutrition began to improve, a healthy complexion replaced the previous muddy anemic one, the joint irritation slowly subsided, and for the past year or more she has been in perfect health.

The question arises what shall be done with those patients who are not yet helpless, but in whom we are unable to find the cause. For the present, I shall have to give the advice that they be left alone, unless they are thoroughly familiar with the disease, know what is in store for them if they follow the ordinary methods of treatment, and are willing to persist in the treatment above outlined until relatively cured. The only cases in which I have suffered defeat have been those of patients who have come in the intermediate stage when the cause could no longer be ascertained and before they were absolutely helpless.

If the patient does not come under treatment until she is bed-ridden much can still be done for her. She can be relieved of all of her pain, much of her deformity and malnutrition; often she can be rendered self-supporting and always enabled to look after her own personal wants.

As an illustration of the above I wish to give briefly the history of one of the worst cases of arthritis deformans I have ever treated.

CASE 2.—An unmarried woman, aged 29, came to me in the summer of 1897. She was scarcely able to walk a distance of two blocks; she was greatly emaciated and gave the history of first experiencing slight pain at the point of insertion of both tendons of Achilles five years previously. Gradually and insidiously one joint after the other became involved, so that when I first saw her nearly every movable joint of the body was affected. In the meantime she had consulted many physicians, including several prominent specialists and also numerous quacks, including faith-healers, etc. During the next two years I tried various remedies then advised in the treatment of this affection, including the application of hot air and wet compresses. The patient, however, became progressively worse, more and more helpless, bed-ridden, so that by 1899 she was absolutely helpless. She could not walk, stand, lie or sit, but had been resting in a semirecumbent position on a specially constructed couch. Finally she became so helpless that she could not even turn the leaves of a book which was resting before her on a reading table; even her jaws and spine were partially ankylosed. In 1900 she was sent to the hospital; on admission she weighed 78 pounds. She was anesthetized, the contractures broken up, immobilized as previously outlined and slowly began to improve. The last time I saw her, about five years ago, she weighed 140 pounds, and was up and around; to be more precise, she was stirring the batter for a cake. She informed me that she was doing considerable housework, nursing her aged sick mother, and was able to attend to her own personal wants with the exception of putting on her own shoes and stockings. For the last five or six years she has sent me a piece of her own needlework every Christmas.

While such a condition is not to be looked on as a perfect cure, it is surely a very much less deplorable condition than that which existed before this treatment was instituted. I have several patients who had been bed-ridden for years who are now making their own living.

In concluding, I should like to emphasize the following points: first, that a clear differentiation is absolutely necessary to the successful treatment of these chronic joint affections; second, that beginning cases of arthritis deformans should be carefully studied, the cause ascertained and removed whenever this is possible; third, that for the present at least it is well to be rather cautious in the treatment of the intermediary cases; and, finally, that even in the very late and apparently hopeless cases the patients can usually be greatly benefited by proper treatment.

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NITROUS-OXID-OXYGEN ANESTHESIA BY THE METHOD OF REBREATHING

WITH ESPECIAL REFERENCE TO THE PREVENTION OF SURGICAL SHOCK

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The following article gives the results of a trial of nitrous-oxid-oxygen anesthesia in the service of Professor Halsted at the Johns Hopkins Hospital. My object at the outset was to develop a method of administering these gases so simple, cheap and effective as to make possible their more general use. As nitrous-oxid and oxygen are expensive and are to be obtained only in heavy cylinders, it seemed to me that the solution of the question of their administration, so far as cost and convenience are concerned, must lie in using them over instead of wasting them after one inhalation. I have, therefore, studied the effects of rebreathing these gases with a view to determining to what extent this may be permitted without injury to the patient. My results have led me to believe that within certain limits the method is not only harmless but beneficial.

For the sake of clearness I shall consider the facts to be presented under three headings, namely: (1) the apparatus employed; (2) the method of administration; (3) the clinical results.

THE APPARATUS

This consists of a holder for the cylinders of gas, a rubber bag, a face-piece, and the connecting tubing. The holder, as will be seen from Figure 1, consists of a basket of iron, triangular on cross-section, into which two cylinders of nitrous oxid and one of oxygen may be placed. Small set-screws hold them in position. One of the lateral bars of the basket is made into a handle for carrying it about. In the operating-room we have a special stand for this holder. Such a stand is unnecessary, however, as the holder may be placed on a table or chair. To the upper part of the holder is bolted an L-shaped tube, each arm of which is about 2

inches long and 1 inch in diameter. Three small tubes through which gas is admitted from the cylinders enter the upper part of the L tube. Each of these is connected with its cylinder by means of a short piece of rubber tubing and an ordinary collar of the kind sold with the cylinder.

A rubber bag of 6 to 8 liters' capacity is attached to the vertical arm of the L tube, and a rubber pipe one inch in diameter and 2½ feet long to the horizontal arm. This pipe is wrapped with wire to prevent kinking. It leads to the face-piece. If so desired, the rubber bag may be attached directly to the face-piece. It is more convenient, however, to have it on the holder. There is no obstruction to breathing through a tube an inch in diameter. As the face-piece (Fig. 2) is the most important part of the apparatus, it merits a somewhat careful description.

Fig. 1.—The complete apparatus.

It consists of a valve box (VB) and a mask (M). The valve box is made on the principle of a trombone and has an outer and inner tube. By sliding the latter to a given one of three positions, the patient may be made to breathe air in and out through valves, or gas (with oxygen if desired) in and out through valves, or gas to and fro into the bag.

In Figure 2, OC is the outer tube, IC the inner, and VC a valve cartridge which slips into IC, and may be taken out at will to permit repair of the valves. Nitrous oxid and oxygen are admitted at the end marked "From Gas-Bag." The other end is covered by a detachable diaphragm (D) perforated by wide openings around its border. These are closed by a rim on the valve cartridge when the latter, together with the inner tube (IC) is shoved to that end of the outer tube (OC).

The outer tube has two lateral openings: an air-vent ("Air") and a large orifice (FO) leading to the mask. The inner tube has three lateral openings, O_1, O_2 and O_3, placed as shown.

The valve cartridge is open at both ends, and has a lateral opening which fits over the orifice O_3 in the inner

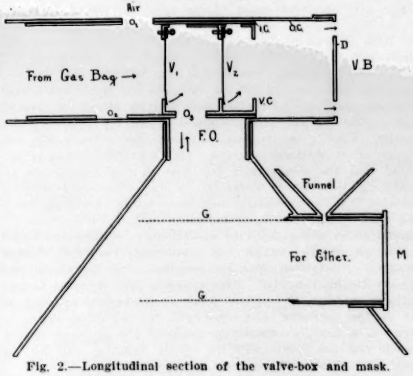

Fig. 2.—Longitudinal section of the valve-box and mask.

tube. It has two valves of rubber (V_1 and V_2) which open in the direction indicated by the arrows.

The inner tube may be pushed into three different positions: The first is shown in Figure 2; in the third its end is against the diaphragm D, while in the second position it is halfway between these extremes. When in the first position, air enters the valve box through the air vent, and is breathed inward through the valve V,

Fig. 3.—Adjustment of the cuff to the face, and method of using ether.

and the opening O_3, and outward through O_2, valve V_2, and the holes in the diaphragm D. Gas is usually not given when the air vent is open. In the second position, the air-vent is closed and gas is breathed inward and outward just as air is breathed in the first position, the only difference being that the orifice O_3 in

IC is over the opposite end of the large opening, FO, in the outer tube. In the third position, the air vent is still closed, and O_2 comes over FO while the valves are thrown out of action. Gas is then breathed to and fro into the bag.

The mask is attached directly to the valve-box, as shown in Figures 1, 2 and 3. It is essential that this fit the patient's face so as to be absolutely air-tight. The ordinary face-piece is fitted with an inflatable rubber rim. As such a mask cannot possibly fit every face, a set of graduated sizes must be employed. Even then a mask cannot always be found which will fit the face of an edentulous patient or of one with a beard or a prominent nose. As these face-pieces do not fit under the chin, they are usually brushed away by any sudden movement of an unruly patient. Furthermore, it is very tiresome to hold such a mask accurately in place during a long anesthesia.

I have hit on a simple device which does away with these difficulties. This consists of a mask provided with a rubber cuff, and big enough to fit the largest face. The cuff is pulled up over the margin of the mask (Fig. 3). To adjust the cuff to the face the free portion of the cuff is turned back over the margin of the mask, and the latter is put on the face so as to take in the nose and chin. The cuff is then turned down, when it firmly grasps the chin, cheeks and nose. It may be made to fit any face. I have used it on a child 2 years old. The cuff allows dental props, gags, etc., to be put into the mouth without admitting air.

One other part of the mask—the ether attachment—remains to be described. This (Fig. 2) consists of a cylinder of wire gauze (G_1) an inch and a half in diameter, fitted at one end to a short metallic cartridge ("For Ether," Fig. 2). The latter fits accurately the inside of a tube passing through the wall of the mask. Tube and cartridge are perforated by small openings which may by superimposing by rotating the cartridge. The wire cylinder is packed with gauze, on which ether is dropped through the orifice H. The latter is provided with a funnel, inside of which is a perforated plate which prevents any splashing of ether when the patient expires. Because of the heat inside the mask, the ether is rapidly evaporated from the gauze, and very small amounts are required. It need hardly be said that chloroform should never be given with such an apparatus.

The main features of this apparatus may be summarized as follows:

1. It is simple and is made to withstand hard usage. It cannot easily get out of order, and, if it does, it may be quickly taken apart and repaired.

2. It is light and easily portable. Exclusive of the cylinder, it weighs only 6 pounds; with two cylinders, 26 pounds. Packed in a bag of canvas or leather it may be taken anywhere.

3. It may be quickly sterilized by boiling. To spare the rubber we usually sterilize the bag and tubing with a solution of bichlorid of mercury which is rinsed away with water.

4. It is economical in the use of gases, as the cuff prevents all leakage.

5. There is so little mechanism to be considered and the administration is so simple that the anesthetizer has plenty of time for observation of his patient.

6. It is inexpensive. The total cost of the apparatus is about $25.

METHOD OF ADMINISTRATION

With the air-vent open the cuff of the mask is fitted to the patient's face, care being taken to prevent the admission of air at the sides of the nose. In some cases it may be necessary to lay a piece of gauze across the bridge of the nose and draw the cuff over it, or to hold the cuff there with the finger. The inner tube of the valve-box is pushed to its mid-position and nitrous oxid admitted to the bag. The patient now inhales this gas and expires into the outer air, thus washing out, as it were, all the air from his lungs. This process is continued until he becomes very slightly cyanotic. Then the inner tube is pushed to its final position and the patient breathes to and fro into the bag. At this moment a small puff of oxygen is admitted to the bag, just enough to restore the natural color of the face. The patient now rebreathes a mixture of nitrous oxid and oxygen until the inner tube of the valve box is moved back to its mid-position. He then exhales each breath into the air until the bag is empty. The anesthetizer then fills it with a fresh mixture of gases, which the patient again rebreathes. No attempt is made to measure the exact percentage of oxygen given. This we regard as unnecessary. It is perfectly easy to add directly from the oxygen cylinder exactly the right amount of this gas to each bag of nitrous oxid. The patient's color is an extremely delicate indicator of the amount of oxygen he is getting. Our rule is to give just enough oxygen to keep the patient's color free of the least tint of cyanosis. The most elaborate device for regulating the percentages of the two gases can do nothing more than this.

The question now arises whether rebreathing in the manner I have just described is injurious. Many writers have attached great importance to certain volatile organic poisons in the expired air. This has caused several inventors of apparatus for giving nitrous oxid and oxygen to do away entirely with rebreathing. Hewitt's apparatus, although its inventor states that rebreathing is probably not harmful, does not permit rebreathing. Dr. H. Warren Buckler, anesthetist for Dr. H. A. Kelly, has used the method of rebreathing for several years and has noted no ill effects therefrom. I have sought from the first to determine to what extent rebreathing is permissible. Prof. W. H. Howell[1] has reviewed the experimental data bearing on the question of the harmful products of expired air. His conclusion, which is based on the experimental work of Haldane and Smith,[2] is that it is highly improbable that any volatile organic poisons exist in the breath, and that the only harmful products of respiration are water vapor and carbon dioxid. He says:

> **Individuals, kept in a confined space for a number of hours, give no symptoms of evil effects except when the accumulation of carbon dioxid has reached a concentration of over 4 per cent. At this concentration rapid breathing is apparent, and if the carbon dioxid rises to 10 per cent. great distress is felt, and the face becomes congested and blue.**

If we accept these conclusions as correct, we may make a rough calculation based on them to determine the number of times a patient may rebreathe a given quantity of gas without injury. The average volume of an expiration for an adult is 500 c.c. This contains 4 per cent., or 20 c.c., of carbon dioxid. Therefore an adult patient can breathe the contents of a bag containing 8 liters of gas sixteen times before the carbon dioxid content of the same will reach 4 per cent.

1. Howell, W. H.: Text-Book of Physiology, Ed. 2, p. 614.
2. Haldane and Smith: Jour. Path. and Bacteriol., 1893, 1, 108, 318.

At first I adhered pretty closely to this rule, as I feared that too high a percentage of carbon dioxid would be injurious. I also tested frequently, usually in the course of the same anesthesia, the effect of rebreathing and of a continuous administration without rebreathing. The latter procedure has always been the less satisfactory one. With it the patient's respiration soon becomes shallow and his pulse more rapid, even when his color is good and the anesthesia deep and satisfactory. With rebreathing, on the other hand, the respiration becomes deep and full and the pulse rate usually falls. This result, until I had familiarized myself with the recent work of Dr. Yandell Henderson on "Shock," I attributed entirely to the stimulant action of carbon dioxid on the respiratory center. Henderson's work, however, indicates that this compound has also a direct action on the venous system.

"Failure of the circulation in shock," he states, "is due primarily to abolition of venous, not arterial, tonus." "The hypothesis is presented that acapnia (diminished carbon dioxid in the blood and tissues resulting from hyperpnea and from exhalation of carbon dioxid from exposed viscera) is the cause of surgical shock." Carbon dioxid, he believes, is the normal stimulant of the venous wall. If the amount of this gas in the blood decreases below a certain level, the veins dilate and the blood accumulates in them until not enough blood is returned to the heart properly to support the circulation. Shock would thus only indirectly be the result of trauma. When it occurs in the course of anesthesia or after a painful injury it would be due to overventilation of the lungs, which diminishes the carbon dioxid content of the blood. Henderson was able, merely by regulating "the rate of pulmonary ventilation" to adjust the heart to any desired rate of beat. He believes that carbon dioxid exerts a stimulative action, not only on the respiratory center, but on the vasomotor and cardio-inhibitory centers as well. The respiratory center is, however, much more sensitive to the action of carbon dioxid than the others, and not until the departure from normal of the carbon dioxid content of the blood becomes fairly well marked is the pulse slowed or the blood-pressure elevated. Thus a reduction of the carbon dioxid content of the blood causes, as a rule, shallow, feeble respiration, a rapid pulse, and low blood-pressure, while excess of carbon dioxid causes deepened respiration, slowing of the pulse, and increase of blood-pressure.

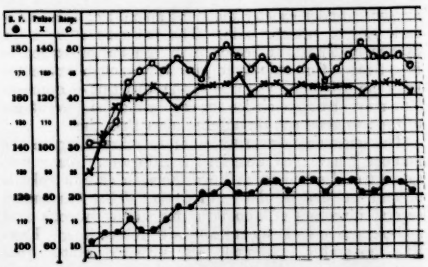

Fig. 4.—Chart of the pulse (line with crosses), respiration (line with circles), and blood-pressure (line with heavy dots), during anesthesia of two hours and fifteen minutes' duration. The patient was a woman of 65 with carcinoma of the sigmoid. The operation was closure of a fecal fistula by double lateral anastomosis, repair of an old wound in the abdominal wall, and colostomy. Note the constant level of the pulse and the maintained rise of blood-pressure. The temperature rose from 98.6 to 99.9. The recovery was excellent.

It is evident, if this theory be correct, that rebreathing to a certain extent, during nitrous-oxid-oxygen anesthesia, is not harmful, but beneficial. The respiratory rate with this form of narcosis is very rapid—frequently from forty to sixty a minute. Such overventilation of the lungs must rapidly take carbon dioxid from the blood. I shall briefly present certain observations which lend support to Henderson's theory.

1. Rebreathing, provided enough oxygen be given to prevent cyanosis, can be permitted for a surprisingly long time without any appreciably injurious result. I have tested this by having healthy adults breathe to and fro the contents of a six-liter bag of oxygen. This may be done from four to eight minutes without the slightest change in pulse or blood-pressure. The gas in the bag becomes hot, moist and disagreeable to breathe, and there is some sweating; otherwise there is no discomfort from this experiment.

2. The pulse, respiration and blood-pressure, once anesthesia is well established, are very little affected by the trauma of the operation. I have twice given this anesthetic during the evulsion of large peripheral nerves and neither time was there the least change in the patient's condition. Likewise there is no change during the most vigorous manipulations of ankylosed joints. The chart (Fig. 4) shows how little effect is produced by trauma and exposure of the intestines. This would seem to be favorable to Henderson's contention that trauma produces shock chiefly by increasing the ventilation of the blood in the lungs. Rebreathing prevents such ventilation.

3. A pulse, rapid before operation, is nearly always slowed when rebreathing is permitted for some length of time. Very sick patients, with rapid pulse and quick, shallow respiration, actually seem benefited by this form of anesthesia. A young man with gangrene of the bowel had a pulse-rate before operation of 160. During the operation, which lasted forty-five minutes, his pulse varied from 90 to 120 and was of a distinctly better quality than before. If the anesthesia is unsatisfactory, or if rebreathing is not permitted to any great extent, I have always noted an acceleration of the pulse. This observation is in accord with Hewitt's statement,[3] that "the pulse is invariably accelerated." It is to be noted that Hewitt's apparatus does not permit rebreathing.

On two occasions I have observed a sudden and marked slowing of the pulse, in one case from 90 to 60 and in another from 80 to 50. In both cases the tension was also markedly increased. Both patients were of a good color and both had been rebreathing for rather long intervals. I attribute a fall of this kind to a sudden stimulation of the cardio-inhibitory center by an excess of carbon dioxid in the blood. On washing out the lungs with a fresh supply of gas, the pulse-rate immediately rose. The blood seems to free itself of an excess of carbon dioxid with great rapidity.

4. There is usually a well-marked and sustained rise of blood-pressure during this form of narcosis. In the case of the patient whose chart is shown in Figure 4 the rise was from 100 to 120. I have a number of charts which illustrate this fact. According to Henderson, carbon dioxid has a direct stimulant action on the vasomotor center.

The carbon dioxid is not the only product of expiration the effect of which must be studied with regard to

3. Hewitt: Anesthetics, Ed. 3, p. 316.

rebreathing. The heat of the exhaled gases has also an important action. Normally the body loses a large amount of heat in the expired air. This loss is prevented by rebreathing. Therefore there is a rise of body temperature. This I have almost always found to be over half a degree in anesthesias of thirty minutes or more. During an administration of three hours the temperature rose 1.3 degrees.

Rebreathing is thus a most effective method of heating the gases, which are cold on being freed from their cylinders.

The body also loses considerable moisture by way of the lungs. Water vapor accumulates in the rebreathed gases, but this, so far as I have observed, has no ill effect on the patient.

It is best and cheapest not to admit any air during the administration. Satisfactory anesthesia is impossible with enough air to prevent cyanosis, because of the large amount of nitrogen in the air.

CLINICAL RESULTS AND OBSERVATIONS

We have given nitrous oxid with oxygen by the method of rebreathing without mishap to about 700 patients. Records of the pulse, respiration and blood-pressure have been kept during the more important administrations, and postoperative examinations of the urine made. From the data so obtained I shall attempt to answer three questions: 1. Is this form of anesthesia safe and free from bad after-effects? 2. Is it deep and smooth enough to be satisfactory to the surgeon? 3. Is the administration sufficiently cheap and convenient to be generally used?

It would be foolish to assert that there is no danger. The danger lies, however, not at all in the anesthetic, but entirely in the way it is given. There are three danger signals: cyanosis, slowing of the pulse, and vomiting. With a good color, a pulse of 70 or above, and regular breathing, there is no danger. Vomiting is not a cause of trouble when the patient has been properly prepared for operation. It is to be feared if he has just eaten, or if he has intestinal obstruction. At the first sign of retching the mask is to be removed. As the patient regains consciousness very quickly, he is not liable to aspirate vomitus.

For an adult man, rebreathing can be permitted for two-minute intervals, and for three-minute intervals for women and children.

I have met practically no bad after-effects. A few patients have vomited during or just after the administration. A few have had slight headache. A boy with extensive burns was anesthetized daily for twenty to fifty minutes on three successive days without the slightest appreciable evil result. He could take food immediately after the administration. Although a very large percentage of our patients have been seriously ill at the time of the operation, many of them with advanced pulmonary or renal disease, we have had no fatalities or postoperative complications attributable to the anesthetic.

In answer to the second question I may state in a general way that for the cases for which this anesthetic is especially indicated it is as satisfactory to the surgeon as ether. Almost every abdominal and peripheral operation, except craniotomy and operations on the female pelvic organs, has been performed under it. Fifty of the cases have been laparotomies. The list has included drainage of the mastoid cells, drainage of the antrum of Highmore, excision of tuberculous glands of the neck, drainage of empyema, removal of the breast for benign and malignant disease, operations on the gall-passages, intestinal anastomosis, appendectomy, cystostomy, nephrectomy, repair of typhoid perforation of bowel, cure of hernia, castration, amputations of leg and arm, exploration of great joints and evulsion of nerves. One administration lasted three hours; three others have been for more than two hours. Most failures are to be traced to a poorly fitting mask. A very small amount of air will spoil the anesthesia. It would be claiming too much, however, to assert that this form of narcosis is always as satisfactory as that of ether. Certain patients cannot be kept properly relaxed without a disagreeable degree of cyanosis. With such cases it is wisest not to go on very long with nitrous oxid, but to give ether at once, either very small amounts in the mask or by the drop method. Ether should never be given for a long time by means of the mask. By the aid of a few drops, however, there is rarely a patient who cannot be carried through the more difficult periods of the operation.

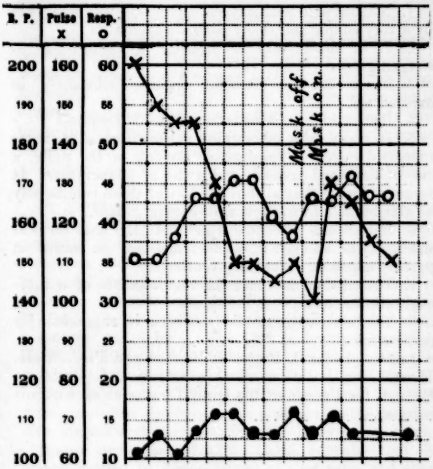

Fig. 5.—Chart of the pulse, respiration and blood-pressure during an operation for recurrent sarcoma of the humerus. The rapid pulse at onset was probably due to nervousness.

To the third question I can at once answer in the affirmative. For the following reasons this form of anesthesia is very convenient:

1. It is pleasant to the patient; many patients will consent to operation under "laughing gas" who would refuse if ether were to be used.

2. Consciousness is quickly lost and quickly regained. The patient does not have to be watched by the anesthetizer for more than a brief period after the operation, and may be allowed to come out of the anesthetic at any time should his cooperation be necessary to the surgeon. Very few patients have any excitement on recovery.

3. The anesthetic is so nearly harmless that one does not hesitate to give it to the same patient over and over again, at frequent intervals, or to use it for painful dressings, manipulations, etc.

4. The apparatus is cheap, easily portable, simple and not difficult to use.

5. The cost is not great. The patient whose chart is shown in Figure 4 consumed one cylinder of nitrous oxid (cost $1.75) and ten to fifteen gallons oxygen (cost about 40 cents) in two hours and fifteen minutes. Roughly, the cost is about 1½ cents per minute of anesthesia. The cost is greatly lessened by the method of rebreathing.

Besides being safe and convenient, this form of anesthesia has, I believe, a unique characteristic which makes it especially valuable for very sick patients. I refer to its remedial action for shock. This effect, which has already been discussed, may make of the anesthetic an aid instead of an evil. Furthermore, I have seen no cases of postoperative collapse following its use. Patients who cannot be easily anesthetized by nitrous oxid alone may first be etherized to a moderate depth and the anesthesia then continued with nitrous oxid. The therapeutic effect of rebreathing may thus be secured for all cases.

SUMMARY

1. Nitrous oxid with oxygen may be successfully given by a very simple and easily portable apparatus.
2. It is unnecessary to measure the percentage of oxygen given.
3. There are no harmful organic substances in expired air.
4. Rebreathing to a moderate degree is harmless.
5. In many cases rebreathing is beneficial, as it causes increased depth of respiration, slowing of the pulse, a rise of the blood-pressure and a rise of temperature. It seems probable that all but the last of these results may be attributable to the action of carbon dioxid.
6. Evidence is presented which indicates that surgical shock in the absence of hemorrhage may be caused in part by excessive pulmonary ventilation.
7. The method has met the requirements of a thorough clinical test.
8. The ether-nitrous-oxid sequence is suggested for certain cases.

I desire to thank Professor Halsted and Prof. W. H. Howell for criticism of this article and Professor Halsted for the use of the clinical material on which it is based.

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THE HISTORY, PREVALENCE AND PREVENTION OF RABIES AND ITS RELATION TO ANIMAL EXPERIMENTATION *

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One cold, stormy, January night a poor, weather-beaten, tired and bedraggled dog appeared at a farmhouse some twenty miles from Boston. He had evidently traveled a long road and was sheltered and fed and treated with the usual kindness that any one with a heart in him would show to such a waif. The next morning he "made friends" with the neighbor's dog Pete, and, dog-like, the two exchanged a few bites in the process. During the day he seemed morose and unfriendly, and snapped at people, and, from a fear that he might bite the children, he was shut up in an outbuilding. The next morning he was found dead.

In February the neighbor's dog made a vicious attempt to bite a horse driving into the yard. Amazed at such unusual conduct, the farmer drove the dog away with a whip, and the animal disappeared down the road, never to be heard from again except that an animal answering his description was seen to attack two puppies in the near-by village. These two puppies died a few weeks later with symptoms of rabies.

It was Pete's custom to sleep in the barn; and in March two cows in this barn, and a week later two more cows, died showing unmistakable symptoms of rabies, in the opinion of a veterinarian in the employ of the State, who has had much experience with this extraordinary disease.

The explanation was simple: the poor waif had been suffering from rabies, his friendly (?) bite had infected Pete, who had in turn bitten the pups and the cows, and all had died of rabies.[1] There had been no rabies in or about this town before the advent of this waif.

Such strange tales as this, and more strange, were told by our fathers and by their fathers, and each generation back through the centuries has no doubt heard similar stories; and, if we go back as far as the fourth century before the Christian era we find the first record of this disease in the words of Aristotle: "Dogs suffer from madness that puts them in a state of fury, and all animals which they bite, when in this condition, become also attacked by madness."

And, if we return through the ages, following the literature, we find reference to rabies in the works of Virgil, Horace, Ovid and Plutarch. The disease in human beings was first recorded by Cornelius Celsus in the first century A. D., who was also the first to use the word "hydrophobia." Dioscorides recommended the extirpation of the wound as protection against the disease, and Galen in the second century A. D. stated special remedies for rabies. Furthermore, Pliny the younger, Columella and C. Aurelianus may be mentioned among the early authors who referred to the disease. Nothing comes to us on the subject from the middle ages. In 1591 Bauhin in his "Memorabilis historia luporum aliquot rabidorum" speaks of the infection of human beings by rabid wolves. There was an epizootic of rabies in 1604 in Paris (Andry); toward the end of the seventeenth century in Italy (Baglio, Rammazzini); in 1708 in Suabia;[2] in 1719-23 in France and Germany; in 1754-1760 in England; in 1779-1807 in America, especially in West Indian Islands and Peru. Toward the end of the eighteenth and the beginning of the nineteenth century rabies had spread all over Europe. From 1803 to 1830 there was an epizootic of rabies among the foxes in Southern Germany and Switzerland (Köchlin and Franque). The saliva of the rabid dog was demonstrated by inoculation experiments to be infectious by Zinke (1804) and Gruner and Salm (1813); that of herbivora by Berndt (1822), and that of human beings by Magendie.

In 1814 and 1815 accurate experimental investigations regarding the disease were made by Viborg in Copenhagen and Waldinger in Vienna. The clinical knowledge was especially enriched in 1817 and 1818 by Delabère-Blaine and Greve (England). In 1822

* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Nine of these pamphlets are now ready, taking up the relations of animal experimentation to ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, typhoid, dysentery, rabies, etc.

1. To prove the matter beyond peradventure, the brain of the waif (still in fair condition owing to the cold weather) and one of the cows were sent to me for examination, and Negri bodies were easily demonstrated, proving the disease to have been rabies.
2. Camerarius and Scharff: Dissertatio inaugural de Alysso clave, Tübingen.

the epizootic prevailed in Holland, in 1823-1824 in Berlin and Prussia, in 1824 in Sweden and Russia. During the outbreak from 1823 to 1830 Hertwig published[3] a large number of carefully carried-out inoculation experiments on animals which greatly advanced our knowledge. Virchow showed the fallacy of the spontaneous origin theory in 1854.

Galtier of the Lyons veterinary school gave us a method of transmitting the disease to rabbits, thus establishing the often necessary proof that a given suspicious case was truly one of rabies. He also made experiments to confer immunity with saliva and brain matter (1880-1881). The marvelous researches of Pasteur and his coworkers Roux, Chamberland and Thuillier (1881-1889) demonstrated the location of the purest and most concentrated virus in the central nervous system and gave to the world the wonderful protective inoculation which has reduced the mortality in man to a fraction of 1 per cent.

It was imperative that these investigators should use in their studies many animals, and those of different kinds, or no advance in knowledge would have been made. Animal experimentation always has been and always will be absolutely necessary to acquire accurate knowledge of any infectious disease, regarding its cause, means of dissemination, lesions produced, treatment and methods of prevention and eradication.

With the hope of being able to discontinue the necessity of inoculating animals (usually rabbits or guinea-pigs) in order to prove the existence of rabies in a given suspicious case, investigators have endeavored to find definite microscopic evidence equally reliable. Great advances in this direction were made by Van Gehuchten and Nelis in 1900 and by Babes at about the same time by their discovery of characteristic cellular lesions occurring with much regularity in certain portions of the central nervous system of animals and people that had died of rabies, but, as these lesions cannot be considered specific—there being a possible error of perhaps 2 per cent.—animal inoculations were still necessary in most instances. Since 1903, however, they have been rendered much less necessary by the discovery by Negri of very definite miscroscopic "bodies" in the nerve-cells of various portions of the brain in cases of rabies. In these bodies, which bear the name of the discoverer, we are probably close to the long-sought cause of rabies, and their presence having been demonstrated in a given case it no longer seems necessary to resort to animal inoculation to establish the existence of the disease.

As before stated, the disease had become widely spread over Europe during the early part of the nineteenth century. So we read of outbreaks continuing in 1838-40 in Austria and Württemberg, and in 1852-3 in Prussia. For example, in the last-mentioned year 150 rabid dogs were brought to the Berlin Veterinary School, and in Hamburg there were 267 cases of rabies. In 1861 there was an epizöotic in the Rhine provinces and France; in 1863-1871 in Württemberg; in 1862-1867 and 1873-1876 in Vienna; in 1865-1866 in Saxony; in 1871-1876 in Saxony, Bavaria and Prussia. Since the introduction of proper dog laws and compulsory muzzling the disease has greatly diminished in most of the German states, a yearly average of about 700 rabid animals being reported from 1866 to 1902,[4] usually near the border line of countries where muzzling is not enforced.[5] With such laws Denmark, Sweden and Norway have not known rabies for more than fifty years, and it has recently been eradicated from England and Switzerland. It has never been known in Australia, probably owing to the strict enforcement of a six months' quarantine for dogs.

With the exceptions noted, practically every European country—France, Austria, Hungary, Belgium, Holland and Italy—shows a record somewhat similar to that of Germany. Russia has had years of experience with this disease, and that country and Austria constantly supply the German towns on their borders with fresh cases. Roumania, Servia, Bulgaria and Turkey are by no means free, although the fact that dogs in the latter country suffer more often from "dumb" rabies explains the reason why it is not wider-spread in that land.[6] Rabies is also frequently reported in Africa and Asia.

It is naturally the pride of health boards and of governments to show as little disease as possible in their respective communities, and it is doubtless always with regret that they report outbreaks of infectious disease. Therefore, if official figures are to be misrepresented, they would naturaly be minimized rather than otherwise. We must consequently assume that, if the figures given for rabies and all other infectious diseases occurring in various lands are not true figures, they probably and undoubtedly represent fewer cases than actually occur, inasmuch as, unless remarkable supervision is exercised, numerous cases of disease are never reported, or escape detection.

In North America rabies exists in Canada, Mexico, Cuba and very widely in the United States. Accurate mortality statistics for all the states are impossible to obtain, as they are not kept with the same precision as in some European countries, nor has the prevalence of rabies in animals been recorded with much accuracy. We know, however, that it has existed here for about a century and a half. The first outbreak occurred in Boston in 1768, and in 1770 and 1771 it was observed in dogs and foxes in the same vicinity. It was reported in Philadelphia in 1779 and also in Maryland. In 1785 it was prevalent throughout the northern states and soon after spread to the southern states.[7] Peters[8] quotes from a Boston newspaper of 1798, which indicates that the disease existed in Rhode Island at that time, and there is little doubt that it has existed there and in many other states from time to time ever since. For example, it must have been prevalent in Massachusetts between 1876 and 1882, for during that period 44 people died of rabies, and again between 1888 and 1894 there must have been another outbreak, for 45 people died of it during this period.[9] The largest number of deaths in any one year was 17 in 1890; 15 in 1878, and 14 in 1877 and again in 1889. Previous to this the reports show that 28 people died of hydrophobia between 1842 and 1876,

3. Hertwig: Beiträge zur näheren Kenntnis der Wuthrankheit, 1828.

4. Friedberger and Frohner: Spezielle Pathologie und Therapie der Haustiere, 1904, ii, 548.

5. See maps, etc., in Kitt's Was muss jeder Hundebesitzer wissen? Stuttgart, 1908.

6. Remlinger and Mustapha Effendi, Hutyra and Marek: Spezielle Pathologie und Therapie der Haustiere, 1909, i, 467; Remlinger: Rabies in the Street Dogs of Constantinople, Jour. Tropical Veterinary Science, 1909, iv, 561. In this article Remlinger offers another explanation, not for the Ottoman Empire, but for the city of Constantinople. In closing he says: "It is in the special conditions under which street dogs live, in their distribution into distinct groups, in the subtle instinct which makes the others avoid a rabid dog, to which we must attribute, more than to any peculiarities in the disease itself, the rarity of rabies in Constantinople street dogs."

7. Moore: The Pathology of Infectious Diseases of Animals, 1906.

8. Peters: Am. Jour. Pub. Hyg., 1907, p. 96.

9. Rep. Mass. State Board of Health.

the number varying considerably with the years, often no deaths and once as many as 6 in 1854.

In Massachusetts vital statistics of this disease in animals began to be kept in 1895, and Table 1 is made from the reports of the Cattle Commission (now the Cattle Bureau), the Boston Board of Health, the State Board of Health, Massachusetts reports of births, marriages, deaths, etc., and from figures kindly given me by the Health Department of the City of New York and by Dr. Rambaud of the Pasteur Institute of New York.

TABLE 1.—RABIES IN MASSACHUSETTS

Year.	Mortality Dogs.	Mortality Other Animals.	Mortality People.	People Exposed and Given the Pasteur Treatment.
1895	4	0	0	11
1896	12	2	2	7
1897	19	8	0	8
1898	25	2	2	11
1899	1	1	0	3
1900	3	0	0	0
1901	11	0	0	1
1902	2	0	0	1
1903	1	1	0	1
1904	2	0	0	0
1905	98	5	2	12
1906	356	43	8	133
1907	741	37	2	165
1908	511	53	5	144

These figures are fairly accurate, although probably far too low, as there can be no doubt that many cases in animals, and men also, were never reported. Suspicious cases are not included in the above table; the figures represent only such cases as were demonstrated beyond all reasonable doubt to be actual cases of rabies, either by a clear history of a bite by a rabid dog and subsequent typical symptoms, by the presence of Negri bodies, by lesions in the Gasserian ganglia, by animal inoculation and often all of these proofs in sequence.

Many of our states would show a similar or a worse record if figures were obtainable, but they are difficult to secure.[10] There is little doubt, however, that the disease is widely spread over the country, and few states, if any, are free from it.

Yet in spite of all historic and scientific evidence there are a few medical men who say they do not believe there is any such disease as rabies. They accept without remark other infectious diseases, but rabies is beyond their comprehension. If asked why they hold such contrary opinions, their usual reply is that they have never seen a case. Perhaps they have also not seen smallpox, glanders, trypanosomiasis or China, yet they do not deny their existence.

Here are two historic and scientific facts which have been demonstrated over and over again:

1. If ten persons are exposed to the same gonorrheal infection, a varying per cent. will surely contract the disease, unless preventive measures are employed.

2. If a rabid dog bites ten persons, or animals, a varying per cent. will surely become rabid unless preventive measures are employed. And yet it is as difficult to convince the person who accepts the one and rejects the other as it is to convince the man who refuses to trust the scientific evidence that the earth is not flat.

It is often stated that Pasteur institutes do not prevent rabies, but cause it. They may, so far as they insure a very reliable protection against the disease and consequently induce a carelessness in enforcing proper dog laws which in themselves would be sufficient to stamp it out.

Pasteur institutes are of two kinds, public and private. Public Pasteur institutes are established by endowment, such as the Pasteur Institute in Paris; by governments such as those of the United States Public Health and Marine-Hospital Service at Washington, the New York City Board of Health and the Consejo Superior de Salubridad, Mexico City; by universities, such as the Pasteur Institute of the Universities of Moscow and Bucharest. These are founded for the benefit of the people of the country and for the study of this and other diseases. Private Pasteur institutes are what the name implies, but it is as unfair to impute ulterior motives to their proprietors as it is to assert that all physicians have but one end in view in the practice of their profession. Both do an immense amount of charitable work which is never made public, and for which they often receive not even a thank-you.

Pasteur institutes will cease to exist as soon as properly enforced dog laws eradicate rabies, for no infectious disease can be so easily eradicated. It only needs the cooperation of humanitarians and real dog lovers to pass and enforce the necessary dog laws, and in a few years this will be accomplished. (See English statistics.)

The Pasteur preventive treatment has reduced the mortality of persons bitten by rabid animals from between 6 and 14 per cent. to a fraction of 1 per cent. The statistics of all the Pasteur institutes show this. No class of men is more ready to discredit the work of his brother, or is a more severe critic, than the scientist who controls the work of another, yet the statistics of all institutions giving the Pasteur treatment singularly agree. They may be read in the reports of the various governments and universities or in the *Annales de l'Institut Pasteur* from the time of the first publications by Pasteur.

A few tables will suffice to illustrate. To quote from Law:[11]

The following table gives the number of individuals treated who had been bitten by animals which had been proved rabid by successful inoculation of other animals, and of those bitten by reputedly rabid animals, and their respective mortality:

TABLE 2.—RESULTS OF TREATMENT IN PERSONS BITTEN BY ANIMALS SUSPECTED AND PROVED RABID, RESPECTIVELY

	No. Bitten.	No. of Deaths	Mortality %
By animals proved rabid by inoculation	2,872	20	0.69
By animals pronounced rabid by veterinarian	12,547	61	0.48
By animals suspected of rabies	4,747	15	0.31
Average mortality			0.46

The Pasteur treatment by its great success in persons who have already been bitten has in a great measure robbed hydrophobia of its terrors, only it must be resorted to as early as possible in the period of incubation.

In this connection it should be remembered that there is no known cure for rabies when symptoms have once appeared and that death follows a train of well-recognized phenomena, agonizing to the sufferer; and the delirium and mania, the violent reflex spasms of mouth and larynx with inability to swallow, are harrowing to the observer no matter how extensive his experience as a forced witness of others' suffering. Physicians who have been so unfortunate as to see a person with hydrophobia usually have no desire to see another, and find difficulty in eliminating the haunting recollection.

The figures of the Pasteur Institute of Paris,[12] 1886-1907, are given in Table 3.

10. Kerr, J. W., and Stimson, A. M.: The Prevalence of Rabies in the United States, THE JOURNAL A. M. A., Sept. 25, 1909, liii, 989.

11. Law: Veterinary Medicine, 1900, iv, 331.

12. Ann. de l'Inst. Pasteur, 1908, p. 557.

TABLE 3.—FIGURES OF THE PASTEUR INSTITUTE OF PARIS, 1886-1907

Year.	Persons Treated.	No. of Deaths.	Mortality %
1886	2,671	25	0.94
1887	1,770	14	0.79
1888	1,622	9	0.55
1889	1,830	7	0.38
1890	1,540	5	0.32
1891	1,559	4	0.25
1892	1,790	4	0.22
1893	1,648	6	0.36
1894	1,387	7	0.50
1895	1,520	5	0.38
1896	1,308	4	0.30
1897	1,521	6	0.39
1898	1,465	3	0.20
1899	1,614	4	0.25
1900	1,420	4	0.28
1901	1,321	5	0.38
1902	1,005	2	0.18
1903	628	2	0.32
1904	755	3	0.39
1905	727	3	0.41
1906	772	1	0.13
1907	786	3	0.38

The figures in this table are similar to those of all the Pasteur institutes of the world, for example that of Tunis,[13] where in 1906, 489 persons were treated, with no deaths. Since the foundation of this institute, 2,490 persons have been treated, with 9 deaths, or a mortality of 0.36 per cent.

At the Pasteur Institute of the University of Bucharest, in 1903-1905, 3,091 persons were given the preventive treatment and none died. In Berlin, in 1898-1902, 1,416 persons were given the Pasteur preventive treatment, of whom 12, that is, 0.84 per cent., died of rabies, while among those not treated the mortality was 6.9 per cent. In Prussia during the year 1907, 281 persons were treated, of whom 4, that is 1.4 per cent., died of rabies, while of those not treated 2, 7.1 per cent., died.

At the Budapest Pasteur Institute in 1890-1907, 35,639 bitten persons received treatment, of whom 159, that is 0.44 per cent., died of rabies, while from 1890 to 1903, of 1,861 bitten persons not treated, 266, that is 14.29 per cent., died of rabies.

In 1905 there were treated in forty Pasteur institutes in various parts of the world 104,347 people, of whom 560 (0.54 per cent.) died of rabies later than fourteen days after treatment ended. According to the location of the bite, i. e., head or the hands, the mortality of the treated varies from 1.99 to 0.36 per cent.[14]

The Pasteur preventive treatment depends on the fact that the spinal cord of a rabbit that has been inoculated with "fixed" virus and died of rabies in from six to seven days, loses its virulence day by day, so that at the end of fourteen days it is no longer capable of producing harmful effects.

Beginning, then, with an emulsion of a small piece of cord that is not virulent, or slightly so, the patient is inoculated daily for about twenty days with increasing strengths of the virus until his system has reacted to such a degree that it can withstand the stronger virus and immunity is produced. For this purpose many rabbits must be employed. Many rabbits and guinea-pigs must also be employed for the purpose of diagnosis in all laboratories where this work has to be done, such as laboratories of the boards of health, for instance. Happily, however, not so many animals must be used for this purpose as formerly, owing to the discovery of the Negri bodies. Unless some other method of diagnosis and treatment is found this sacrifice of rabbits and guinea-pigs must continue until rabies is eradicated.

An article[15] on hydrophobia which was recently sent to me was written, doubtless, with the hope of comforting many people and with the best intentions for the general welfare of the country. But I judge that the writer has had no personal experience with rabies and has spent little time on the study of the accepted scientific literature of this or any other infectious disease. Consequently many of her statements are not "facts," and if they are read by people who know nothing of medicine or medical literature, much real harm will be done instead of evidently intended good.

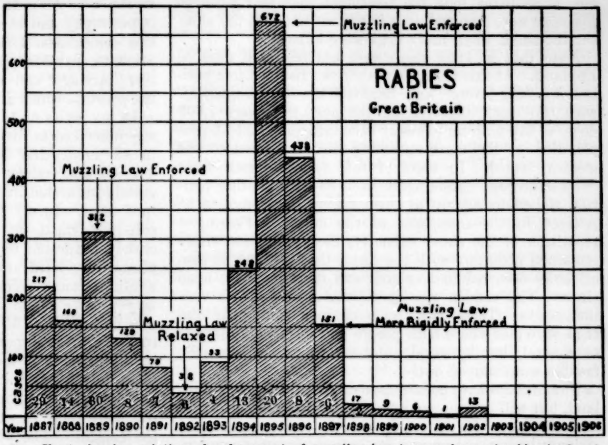

Chart showing relation of enforcement of muzzling law to prevalence of rabies in Great Britain. The figures in the cross-hatching indicate the number of persons who died of rabies in England. Credit for making this chart is largely due to Mr. Aubrey H. Strauss.

She would have us believe, for instance, that the Pasteur institutes are to a large extent responsible for hydrophobia, whereas it is the other way about; if there were no rabies there would be no institutes, and certainly the disease is much older than the institutes. To quote (p. 47): "In Germany, where there is scarcely any hydrophobia, they declined the offer of the Pasteur Institute." This is not a "fact," for there are two such establishments in Germany, the *Institut für Infektionskrankheiten,* Berlin, and the *Hygienische Institut,* Breslau; moreover there is still considerable rabies in that country, as we may see by referring to the works already mentioned, although now fewer deaths than formerly in human beings, perhaps largely owing to these very institutes.

Again to quote from this article:

In England hydrophobia is almost extinct. The report of the Registrar-General for Great Britain and Wales . . . in 1907 said that in 1906 and for three years previously there had

13. Bull. de l'Inst. Pasteur, 1907, p. 404.
14. The above statistics are from Hutyra and Marek.
15. White, Caroline E.: Facts about Hydrophobia, Jour. Zoophily, May, 1909.

not been a single case of hydrophobia in the United Kingdom, and this same United Kingdom refused to have a Pasteur Institute.

Nothing could be more misleading than this "fact." The true reason that there is no rabies in England has nothing whatever to do with Pasteur institutes; it is merely that proper dog laws were enforced, i. e., all unlicensed and unmuzzled dogs were destroyed, as also all dogs exposed to a rabid one. The acompanying chart compiled from the "Annual Reports of Proceedings under the Diseases of Animals Acts" explains the matter very simply.

This scheme is so readily grasped that explanation seems unnecessary. The number of cases of rabies here given refer only to the dog. Other animals are excluded, and I have only added the number of deaths in man to show how they rise and fall with the number in the dog. It should be remembered that many English people annually took the preventive treatment; for example, 147 in the year 1892. These are the only figures that I have, but, if so many took the treatment that year when so few dogs were reported, it is fair to assume that the number increased when more dogs were affected.

Note that in 1892 there were but 38 rabid dogs in England. At this time the authorities listened to a petition of "dog-lovers" and removed the "cruel muzzle," with the result that during the next five years 1,602 dogs, to say nothing of many other animals, and 51 people died of the most agonizing disease known to the medical world. In spite of this fearful lesson these "humanitarians" came again in 1899 with another petition signed by 50,000 of them asking once more to be relieved of the annoyance of the muzzle. Fearing a repetition of the above calamity, the authorities wisely remained obdurate, with the result that in 1905 no case of rabies occurred in England, and there has been none since. The sudden rise to 13 cases in 1902 is very instructive. These cases occurred in a wild, hilly district of Wales where both people and dogs were difficult to control, but by rigid enforcement of the laws the trouble was stamped out.

The muzzles have been removed from the dogs in England, but will be resumed with the appearance of the first case of rabies. Moreover, there is a strict quarantine of six months imposed on any dog brought into the country.

Many people argue that the matter was comparatively simple in England, but that similar results cannot be accomplished here, as this is not a "little island." This is true to a certain extent only. If, for instance, all dogs of a state were muzzled and a rabid dog should come over the boundary from a neighboring state and bite a number of dogs, a certain percentage of these dogs would certainly develop rabies if not destroyed, but the dogs of this given state being all muzzled, the disease would spread no further; in other words, it would be kept down to the minimum.

Even local muzzling may be of great value if properly enforced. For example, not long ago a rabid dog attacked a number of school children and bit several of them severely, necessitating their taking the Pasteur treatment. This dog ran from a neighboring town where a muzzling order existed at that time, and, had he been properly muzzled or immediately shot for not being so, this calamity could not have occurred. Many similar instances might be given.

Even inadequate muzzling sometimes does much good, for it may succeed in preventing an individual dog now and then from spreading this truly terrible disease.

If those opposed to animal experimentation in general and Pasteur institutes in particular are truly interested in preventing much suffering in both animals and man as far as rabies are concerned, they should devote their energies to advocating the adoption of the historic methods employed in England and other countries for the suppression of this disease, and they will have the well-earned satisfaction of knowing that they have accomplished enormous good by assisting in the eradication of rabies from our country without any more annoyance to the dog than is daily experienced by all our draft animals in harness.

PERINEAL PROSTATECTOMY

SOME CONCLUSIONS BASED ON A STUDY OF 400 CASES

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Before discussing the operative results it may be well to say a few words in regard to the differentiation of hypertrophy and carcinoma of the prostate. In making this comparison I have a series of 145 cases of benign prostatic hypertrophy which were exhaustively studied two years ago[1] and a series of 111 cases of carcinoma of the prostate which I have recently published.[2]

In my series of 145 cases of hypertrophy, the prostate was described as distinctly soft in 56, elastic in 26, firm in 45, moderately hard in 14, very hard in no cases. The seminal vesicles were slightly indurated in 19, moderately indurated in 5. Glands were palpable in the pelvis in 5 cases. In my 111 cases of cancer the prostate was soft in 2, elastic in 1, slightly indurated in none, moderately indurated in 6, very hard in 78, stony in 9, in places very hard and in others soft in 10 cases. The seminal vesicles were indurated in most cases, generally very greatly in 88 cases and the membranous urethra was indurated in 35 cases. These figures show at once the very great importance to be attached to induration in the prostate in men past 40 years of age. In a few cases only a small area was involved, but it was invariably very hard. The 2 cases in which the prostate was soft were those in which hematoma was present beneath the capsule. The posterior surface of the prostate was irregular in 14 cases of prostatic hypertrophy and nodular in only one, whereas in carcinoma it was rough and nodular in 69 cases. It is a remarkable fact, however, that in most cases of carcinoma of the prostate the posterior surface is smooth until late in the disease.

The cystoscope showed in hypertrophy of the prostate no intravesical enlargement of the lateral lobes in only 13 cases, whereas in 45 cases of cancer the lateral lobes were considerably enlarged in only 7 and in the rest of the cases either not enlarged or only very slightly so. The median lobe of the prostate, which was so commonly enlarged in hypertrophy, was generally no more than a small bar in carcinoma, there being only 5 cases in 46 in which a small rounded lobe was present. In all of these cases, when the median and lateral portions of the prostate were present as rounded lobes, they were found to be adenomatous hypertrophies which were present at the same time with carcinoma. Pathologic examination showed that the carcinoma involved the posterior subcapsular stratum of gland tissue, whereas the hypertrophy involved the lateral and median lobes and pro-

1. Johns Hopkins Hosp. Rep., 1906, xiv.
2. Young, H. H.: Ann. Surg., December, 1909.

jected into the bladder, the two being distinct and separate processes and the lateral lobes apparently preserved intact by their thick capsules which seem to prevent the ingrowth of cancer. Another very distinctive finding in cases of cancer was marked thickening of the entire suburethral portion of the prostate, whereas in hypertrophy there was only thickening in the region of the median lobe.

A study of these cases showed that carcinoma of the prostate occurred about one-fourth as often as hypertrophy (100 cases of cancer to 400 cases of hypertrophy); that carcinoma frequently occurred in cases in which no hypertrophy was present; that when the two occurred at the same time the cancer generally involved only a transverse layer beneath the posterior capsule and the two diseases remained distinct for a long time; that carcinomas grow upward into the space beneath the trigone and not toward the rectum nor the bladder, which was seldom involved, even late (and then through the trigone and in the region of the ureteral orifices); that induration should be viewed with great suspicion; that great hardness should always lead to an exploratory operation; and that in cases of pure carcinoma there are no enlarged intravesically projecting lateral or median lobes, but in about 50 per cent. of the cases a benign hypertrophy of the lateral lobes is present, and these may project into the bladder.

The value of the cystoscope has been very decisively proved in this series of cases. It was employed in fully 95 per cent. of the cases and was very valuable in demonstrating beforehand the condition of the bladder, ureters and intravesical portions of the prostate.

Vesical calculi were present in about 15 per cent. of the cases and large vesical diverticula in about 10 per cent. (in several sufficiently large to warrant operative removal). In a few instances calculi encysted in pouches or in diverticula were found with the cystoscope, and if they were in such a position as to make removal through the perineum impossible a suprapubic operation was done. Not a few cases, supposed to be hypertrophy of the prostate, were found to be tumors of the bladder, and in several instances hematuria, which was supposed to come from the prostate, was found to come from the kidney. I therefore feel very strongly the great importance of cystoscopy as a preliminary procedure. Without it the operation of prostatectomy is generally much less exact and scientific than with it.

In cases in which cancer was suspected the procedure followed was this: The operation was begun as for benign hypertrophy; that is, an inverted V-cutaneous incision, blunt dissection of the space on each side of the central tendon posterior to the transversus perinei and anterior to the levator ani, division of the central tendon and recto-urethralis, linear incision of the membranous urethra, insertion of the tractor, exposure of the posterior surface of the prostate by pushing back the rectum. Careful palpation was then made, and if the prostate was of stony hardness it was always found to be cancer. If the prostate was somewhat elastic an incision was generally made parallel with the urethra through the capsule on one side and an inspection of the cut surfaces made. A peculiar gritty sensation to the knife, suggesting a very fibrous tissue, and numerous small yellowish dots and lines in a grayish stroma would usually be present if the case were carcinoma. If it were impossible to make a naked-eye diagnosis a piece of tissue was taken for a frozen section which was stained at once and examination made while the operation halted. Not more than six to ten minutes were thus consumed as a rule, and if the case were found to be a fibrous prostatitis instead of carcinoma the usual operation for benign hypertrophy, namely, enucleation of the lateral and median portions of the prostate, was then performed, the urethra and ejaculatory ducts and vesical sphincter being preserved. If the disease was found to be carcinoma and previous examination had demonstrated that a radical operation was feasible this was at once begun by severing the membranous urethra, freeing the anterior and lateral surfaces of the prostate, dividing the bladder just above its juncture with the prostate, cutting across the trigone about 1 to 2 cm. below the ureters and finally excising the vasa deferentia and seminal vesicles with the entire prostate, prostatic urethra, capsule and cuff of bladder in one piece. An anastomosis between the large opening in the bladder and membranous urethra was then made, no difficulty being encountered, as a rule, in making a tight closure (and in getting subsequently a good union). If the disease was found to be carcinomatous, but previous examination had showed that the seminal vesicles were completely involved, or that the invasion had extended too high for any hope of complete excision by the operation above outlined, a simple conservative perineal prostatectomy was performed, great care being taken not to excise any mucous membrane and to dig out carefully the mass of carcinoma in the median portion of the prostate and sometimes beneath the anterior portion of the trigone. The wound was then closed, as in cases of hypertrophy, with double tube drainage for the bladder, light gauze packs for the lateral cavities, suture of the levatores ani and partial closure of skin with catgut.

Postoperative treatment in all these cases was about the same: water in abundance; infusion immediately after the operation (and frequently afterward if necessary on account of uremia); patient out of bed as soon as possible, generally the second or third day; gauze and tubes out on the day after the operation and no subsequent instrumentation except before the discharge of the patient, when a catheter was passed to see whether the bladder emptied itself completely.

I may say here that my experience shows that the passage of sounds is absolutely unnecessary in fully 99 per cent. of the cases. In very rare instances a slight contraction occurs in the membranous urethra several months after the operation, but I have not seen a single case of definite fibrous stricture following the operation, and I do not know of more than two patients who have had sounds passed occasionally since the operation. To pass a sound is always to invite epididymitis and traumatism of the verumontanum, and it is nearly always as unnecessary as it is inadvisable.

ANALYSIS OF RESULTS

I. CARCINOMA OF PROSTATE; RADICAL OPERATION

This was performed in 6 cases. The ages of the patients were 70, 64, 65, 75 and 68, respectively, and symptoms had been present 11 months, 3 years, 4 years, 1 year, 8 months and 1 year, respectively. Physicians had been consulted and treatment given 8 months before in one case and 7 months before in another. In both of these cases an osteopath was employed who gave prostatic massage, thus losing valuable time. One patient had been subjected to a Bottini operation six months before admission. In all cases sufficient symptoms had been present to warrant rectal examination, by which a

diagnosis could have been made long before the patient applied to us for treatment.

The onset symptoms were difficulty and frequency of urination in all cases except one, in which the first symptom was pain in the urethra. Three patients had never suffered any pain. In the other three cases pain, either local or referred, was a prominent symptom. On admission urination was extremely frequent and difficult in all cases except one, in which a catheter was used twice daily.

The prostate was described as considerably enlarged in 3 cases, of moderate size in 2 cases and slightly enlarged in 1 case. Marked induration was present in all cases, involving the whole prostate in 4 cases. In 1 case one lobe was indurated, but less so than the other and distinctly elastic. In one case the marked induration was confined to half of the prostate, the other being very slightly indurated.

The seminal vesicles were found on rectal examination to be free from infiltration or induration in 4 cases. An area of induration between the seminal vesicles was present in 4 cases. The catheter showed 400, 300, 500, 400, 80 and 600 c.c. residual urine.

The cystoscope showed a slight elevation of the median portion in 5 cases. In one case there was a small definitely rounded median lobe with a shallow cleft on each side.

The lateral lobes were scarcely enlarged intravesically in any case. There was generally not even a sulcus between them in front, but in 2 cases it was present but shallow. The vesical mucosa was everywhere intact, but the cystoscope showed an elevation of the trigone which involved only the anterior portion in one case. In one case the trigone was considerably elevated and irregular, extending out on the left side as far as the urethra. In 4 cases the trigone was negative.

In 5 cases the operation was carried out with apparent success and without shock, but a study of the specimens removed showed carcinoma near the upper limit in 2 cases. In one case (patient dying of shock) autopsy showed extensive carcinoma of the peritoneum and retroperitoneal glands, although the bladder and seminal vesicles were free from invasion. In one case the patient died nine months after the operation as a result of traumatism and infection, in the attempt to remove a stone adherent to a silk suture. Autopsy showed a very small area (1 cm. in diameter) of recurrence back of the bladder. In one case the patient lived over three years in comfort, but autopsy showed extensive metastases in various parts of the bladder, the bladder and urethra, however, being free from ulceration. In one case in which the patient died six weeks after the operation from ascending renal infection as a result of the intentional but injudicious division of the two ureters, an extremely careful post-mortem examination of all the pelvic tissues, with numerous sections taken for microscopic study, failed to reveal any evidence of carcinoma, and it seems probable that the disease had been completely eradicated. Two patients are alive and apparently well, one six months and the second four and one-half years after the operation. In both of these cases the specimens showed that the disease had been completely removed with a fairly wide margin, and in one case at least the lapse of time seems to insure a radical cure.

As a result of the experience gained in these 6 cases the following may be said:

1. The operation should not be attempted in cases in which the infiltration extends more than a short distance beneath the trigone as determined by the cystoscope and by examination with the finger in the rectum and the cystoscope in the urethra; or in those in which the upper portions of both seminal vesicles are involved; or in those in which an extensive intervesicular mass or indurated lymphatics or glands or involvement of the membranous urethra or muscles of the rectum shows that the disease is manifestly too far advanced.

2. The ureteral papillæ should be left intact with sufficient tissue below them to insure proper suture and leave their openings free, 1 or 2 cm. above the wound.

3. Hemorrhage should be carefully checked (by hugging the capsule injury of the periprostatic flexus may be largely avoided).

4. Silk should never be used in making the urethrovesical anastomosis on account of subsequent deposits of lime salts, but chromicized catgut with occasional sutures of silkworm gut (left long for subsequent removal) are the best.

5. When the operation is attempted early it can be performed without much danger or great difficulty and with excellent chance of cure.

6. Only 3 of the 6 cases above recorded were suitable for operation. In all of these the disease was apparently completely removed, and one patient is now apparently well four and one-half years after the operation.

II. CANCER OF PROSTATE; PARTIAL OPERATION

The results obtained in cancer cases by a conservative perineal prostatectomy (in which the urethra is preserved intact, the median and lateral lobes being shelled out from the capsule as completely as possible and the internal orifice of the urethra dilated with forceps) have been surprising. I have grouped them in classes.

Class 1.—Those with a "perfect" functional result; i. e., complete relief of urinary obstruction as long as the patient lived.

There are 5 patients in this class, aged 72, 64, 82, 55 and 57; prostatic symptoms had been present 6, 3, 7, 2 and 6 years, and the patients lived 3½, 2½, 2 years, 10 and 4 months, respectively, after the operation. The relief of the urinary obstruction and pain afforded by the operation in these cases was, indeed, splendid.

In these 5 cases the patients have been able to void naturally without hesitation in a fairly good stream without pain and have never required catheterization.

In one of the cases the patient did not have to get up at night to void. In others the interval was slightly shorter than normal, but the patient considered himself well as far as the bladder was concerned.

Class 2.—Cases in which the patients are still alive and completely relieved by the operation of conservative perineal prostatectomy.

There are 10 cases in this class, the patients being aged 60, 62, 61, 78, 67, 75, 67, 79 and 75; symptoms present 2, 3½, 15, 10, 4, 1, 1, 1, 4 and 1 year; and all ten patients alive and completely relieved 5, 1½, 1½, 1 year and 9, 7, 7, 4, 3 and 3 months, respectively.

Two cases were of interest because the carcinoma was localized in a small area in the prostate and apparently completely removed with the lateral lobes. Both of the patients are apparently completely cured now, 5 and 1½ years after the operation. In another case not tabulated here (operation by Dr. J. R. Caulk) a similar small nodule of carcinoma was found in the anterior commissure of the prostate. There are only 3 cases in which carcinoma was discovered extremely early. The case in which the disease has been present for 15 years was one of chronic prostatitis with a small area of carcinoma, and

the case in which the symptoms had been present for 10 years was one of hypertrophy of the middle and lateral lobes with carcinoma of the posterior portion of the prostate.

The results in these cases have been extremely satisfactory. There has been no hematuria in any case since the operation and no evidence of vesical tumor formation. So far they bid fair to give good final results.

Class 3.—Cases of good immediate results, but subsequently recurrence of obstruction.

There are four cases in this class, the patients being aged 66, 66, 75 and 54; symptoms present 4½, 3½, 3 and 3½ years, respectively.

In the first case the median bar was not removed and a recurrence of the obstruction was to be expected. It is surprising that ten months elapsed before the patient had to begin the use of a catheter.

In the second case benign hypertrophy of the lateral and median lobes in front of the posterior layer of cancer was present. The operation was apparently complete, but obstruction recurred in six months. The patient is still alive, two years after the operation. The relief of obstruction in the third and fourth cases was also temporary (ten and eight months).

A survey of the 19 cases, grouped above, in which the operation of conservative perineal prostatectomy was performed shows no cases in which there was no benefit from the operation and only 4 cases in which almost complete and permanent relief was not afforded by the operation. Two cases were remarkable for the length of time (3½ and 2½ years) in which the patients lived in complete comfort, as far as the bladder was concerned, although the cancer spread upward involving the high pelvic structures, and in one case producing stricture of the rectum. Some of the cases in Class 2 bid fair to be as successful as the two above mentioned, as the patients are still in excellent health a year or more after the operation. Two cases are remarkable in that the patients have been completely cured by the operation. In these cases, however, the diagnosis of carcinoma was not made before operation and the carcinoma which was present in each case was simply a small nodule in one of the lateral lobes and completely removed by the operation. These two cases show the very great importance of early operation in hypertrophy of the prostate, even though carcinoma is not suspected. In both these cases, however, rectal examination showed distinct induration, greater than that usually seen in hypertrophy, thus demonstrating the importance of suspecting carcinoma in all cases where any portion of the prostate is markedly indurated.

The results obtained in these 19 cases (79 per cent. of lasting relief of obstruction) shows the very great value of this operation, of enucleation of the obstructing lobes, in cases of carcinoma in which the radical operation cannot be undertaken, but in which the patient is suffering with frequent, difficult or painful urination and catheter life is either impossible or very difficult, painful or burdensome. One is almost tempted to say that the operation is generally advisable, but I think it is better to try to get along without it, using the catheter, if necessary, until the conditions described above supervene, when the operation may be easily undertaken. Great care should be observed in preserving the normal structures, particularly the mucous membrane of the urethra and vesical neck, but the operation should be very thorough, particularly in the region of the median portion. The operator should be sure that the prostatic orifice is well dilated and should make an examination with the finger to see that all the obstruction has been removed and to palpate the trigone. If a considerable subtrigonal infiltration is discovered it may be advisable to remove it with the curette through the cavity left by the removal of the median bar; this was done in some of these cases. It is possible that in the 4 cases in which there was a recurrence of obstruction this recurrence was due to the fact that a mass of subtrigonal infiltration was not removed in either of these cases.

Two recent cases have not been included. In both of these, however, the immediate results have been excellent and the patients have left the hospital within three weeks, the fistula closed and the patient voiding naturally without pain. This makes 21 cases in which I have personally performed the operation of conservative perineal prostatectomy in cancer cases without a single death.

III. BENIGN HYPERTROPHY AFTER PERINEAL PROSTATECTOMY

Ages of Patients.—In 339 cases of benign hypertrophy of the prostate which have been analyzed, the ages of the patients were as follows:

	Cases.
Under 50 years	12
Between 50 and 59 years	63
Between 60 and 69 years	145
Between 70 and 74 years	66
Between 75 and 79 years	41
Over 80 years	12

One of these patients was 88 years of age and one 87 years of age. As seen here the operation was not refused on account of the age of the patient (and I may say that it has been extremely rare to refuse to operate because the patient was too weak). In almost all cases in which it was unwise to operate at once, preliminary treatment was given, and if at the end of two or three weeks the condition was not desperate perineal prostatectomy was performed. In several instances it was done really as a life-saving measure with the hope that the better drainage afforded would save the patient, but at least 4 of my 13 fatalities was due to this, and since I have adopted a longer course of preliminary treatment for desperate cases this has not occurred.

Marital State.—Two hundred and sixty-two were married, 54 were widowed, 21 single and in 2 no record has been made on this point. This would seem to show that single men were more or less exempt from prostatic hypertrophy, and it is also borne out by the fact that in my first series of 145 cases there were 10 Protestant ministers, all of them married, and not a single Catholic priest.

In this series also statistics show conclusively that gonorrhea cannot be considered a causative factor, there being in 145 patients only 46 who admitted having had gonorrhea and in only 8 cases were strictures present. In only a few cases was there a history of a chronic prostatitis extending up to the time of the beginning of symptoms of hypertrophy, so that it seems evident that chronic inflammation does not play an important rôle in the etiology and that sexual activity does.

Time Since Operation.—In the following tabulation of results I have included only cases in which the operation was performed over four months ago. I have thus excluded 14 cases of more recent date, in some of which the patients are in the hospital, but all of which are apparently going to give excellent results. Among the 327 operative cases I have been able to hear from 250 patients (and these are alone included in the various tabulations below). This does not include the reports in regard to patients who have died since leaving the

hospital, which will be considered separately. The time elapsed since operation is given in the following table:

	Cases.
4 to 6 months	13
6 to 11 months	27
12 to 17 months	42
18 to 23 months	22
24 to 30 months	24
30 to 35 months	14
3 to 4 years	38
4 to 5 years	41
5 to 6 years	24
6 to 7 years	5

As noted here, in 146 cases (about 60 per cent.) more than two years have elapsed since the operation, so that ample opportunity has been afforded for obtaining the ultimate results.

Time of Closure of Fistula.—This is shown in the following table:

	Cases.
1 week	11
2 weeks	44
3 weeks	70
4 weeks	45
5 weeks	19
6 weeks	9
7 weeks	3
8 weeks	10
3 months	12

As noted here, in 50 per cent. of the cases the fistula closes in less than twenty-one days, and in 22 per cent. of the cases inside of fourteen days. In one remarkable case there was never any leakage of urine through the perineum after the removal of the tubes on the second day after the operation, and in 2 cases none after the fourth day. In 8 other cases the fistula closed within the first week, and this in spite of the fact that these patients were out of bed on the third day after the operation and generally walking during the first week. As noted in this list, in only 10 per cent. of the cases was the fistula present after the sixth week. In a few instances the fistula persisted for several months, but there are only 2 cases in which the fistula is still present after a prolonged period. In one of these a perineal urinary fistula is still present, two and one-half years after operation. The patient has symptoms strongly suggestive of vesical and probably prostatic calculi, but cannot be induced to return for examination. The second case, in which a perineal urinary fistula is present, is one in which a tear was made into the rectum during operation, and, although immediate closure was performed, a recto-urethral fistula has persisted. This is the only recto-urethral fistula which is present, though not the only case in which the rectum was accidentally injured at operation. When it is so injured it is almost always the operators' fault unless there be extensive perineal scar tissue,in which case the perineal operation should be avoided. As a rule, no difficulty whatever is experienced in separating the prostate from the rectum.

Length of Stay in Hospital.—As showing the benignity of the operation, the following table of length of time in which the patient remained in the hospital is very instructive:

	Cases.
6 to 13 days	8
14 to 20 days	61
21 to 27 days	74
28 to 34 days	52
35 to 42 days	28
7 to 8 weeks	14
8 to 9 weeks	3
9 to 10 weeks	0
10 to 11 weeks	2

As shown here, there were 8 patients who left the hospital in less than fourteen days, one on the sixth. In all these cases the results have been excellent and the patient felt so well that he insisted on leaving. In 28 per cent. of the cases the patient did not remain three weeks, and in 60 per cent. of the cases the patient went home by the end of the fourth week. Only 2 patients in 251 remained longer than two months.

It is, indeed, remarkable to see how rapidly these very old and often very infirm men convalesce. After the second week they are generally fretful to get home, and about the only thing that keeps them is waiting for the fistula to close. The fact that in most cases only a few drops of urine escape through the fistula during urination after the first ten days makes it very difficult to restrain them from departing before the fistula closes completely.

Functional Results.—Answers have been received from 241 patients. In interpreting these it must be remembered that in a large proportion of cases a polyuria is present, the amount of urine voided in twenty-four hours being considerably more than that in younger men and the specific gravity considerably less. This polyuria is most marked at night. In one of my cases only 10 ounces of urine is eliminated during the day, though 60 ounces are passed during the night. This polyuria will account for many of the cases in which urination is as frequent as every two to three hours; notwithstanding this frequency the patients consider themselves well. In other cases the increased frequency is due to long-standing cystitis with contracture of the bladder. This is almost always present, often permanently, in cases in which a calculus has been present before operation. (Calculi have been found in about 16 per cent. of the cases.) The two cases in which urination still occurs at intervals of half to one hour were characterized by contracted bladder, severe hemorrhagic cystitis, chronic prostatitis and marked pain. The operation was performed in the hope of giving some relief, and, although the obstruction which had previously been present has been removed, the patient still suffers from vesical irritability and frequency of urination.

In almost 65 per cent. of the cases the interval is about four hours, and 46 patients do not have to arise at all at night to urinate; 222 patients state that they void urine naturally; 15 patients say that urine is voided almost naturally, there being slight hesitation or slowness of stream.

I have made careful inquiries as to the use of catheters and find only 2 patients in whom there is almost complete retention of urine, requiring a catheter about three times daily. Cystoscopy several months after the operation, showed, in both cases, a small remaining median bar, and it seems probable that this is causing the obstruction. In these 2 cases (which I have not been able to see) there was a return of obstruction several months after operation. Both of the patients required catheterization when last heard from. A fourth patient returned the other day and a catheter found 450 c.c. residual urine, although the patient was voiding quite normally and at intervals of two to three hours. The cystoscope showed a very small transverse median bar and this was excised, under cocain, with the "urethroscopic median bar excisor or punch" which I have recently devised and employed with considerable success in about 14 cases. I have examined as many cases as possible at my office, and in a few instances have found from 30 to 50 c.c. residual urine. These patients, however, are very comfortable and void freely. In one case residual urine seems to be due to a diverticulum in the right half of the bladder.

In my first series of 145 cases the catheter was employed on entrance by the patient in 105 cases, in 35

on account of complete retention of urine, and in 70 cases, although the retention of urine was incomplete, the catheter was used irregularly. It is fair to assume that in this latter series the proportion of cases requiring the catheter before operation was about the same. Physicians have become alive to the dangers of a catheter life, but not to the great damage done by a large amount of residual urine. A catheter life is greatly preferable to an increasing back pressure on the kidneys. Early operation is the great desideratum.

I believe that in all cases retention of urine after the operation is due to an incomplete enucleation and is the direct fault of the operator. There have been only 3 cases in 339 in which a catheter has been required since operation. This series, I believe, shows conclusively that it is easy to remove all obstruction and to furnish complete restoration of normal urination by means of perineal prostatectomy.

It is interesting to note the relief from pain which has been given by the operation. Two hundred and forty-two patients say that they have no pain at all and 15 complain of only very slight pain. Several patients complain of irritability of the urethra; 2 patients with chronic prostatitis complain of severe pains in the back and hips, and one patient with multiple diverticula complains of severe pains in the rectum. Aside from these, the patients have been apparently completely relieved of pain (which was considerable before operation in a large proportion of cases).

To the question, "Have you been cured by the operation?" 222 out of 250 reply that they are absolutely cured. Twenty-one patients state that they are almost cured and one patient that he is improved. There is not a single patient who reports that he has been unimproved by the operation, although a few cases, in which the principal symptoms were vesical irritability, frequency of urination, and pain with contracture of the bladder have not been entirely relieved, although urination has become much more satisfactory with the removal of the obstructing median bars. This small group represents some of the most unsatisfactory cases in genito-urinary surgery, which generally require months of local treatment to the seminal vesicles, prostate, urethra and bladder.

Incontinence.—Definite incontinence is present in only 2 cases. One of the patients is a man now 84 years of age who had an immense prostate weighing 300 gm. He had previously had a suprapubic operation, and on account of the great size of the prostate the operator had refused to remove it. During my perineal operation the patient became very weak and the deep portions of the prostate had to be removed hastily, and in so doing the vesical neck and possibly some of the perineal muscles were injured or lacerated. The patient is able to retain urine while recumbent and does not wet the bed at night, but when he is on his feet there is a continuous dribbling. I have not had a chance to make a cystoscopic examination.

The second patient is a man, 65 years of age, who had complete retention of urine. Cystoscopic examination showed a peculiar orifice with several rather deep sulci. The operative note says that the urethra was so thin that after the lateral incisions were made the ejaculatory bridge tore away anteriorly and the prostate was about to come away in one mass, the lateral and median portions together. The lateral lobes were removed separately and then the median lobe was removed after dividing the urethra transversely just in front of the median lobe and stripping it up anteriorly and posteriorly. Examination then showed a dilated lacerated prostatic orifice and a suture with catgut was taken. Two months later the patient complained of incontinence when on his feet, and the cystoscope showed a markedly dilated internal sphincter with a wide cleft posteriorly. A recent letter says that he voids urine naturally and occasionally can hold it all night without wetting the bed. When on his feet he is apt to dribble, though occasionally he can hold urine for four hours.

In both of these cases the operation performed was not according to my usual technic; much more traumatism was done to the vesical neck in both cases, and it seems probable that this is responsible for the incontinence when the patient is on his feet.

There are other cases in which the retentive power is not as strong as the patient would wish. In one case the patient's physician writes that he thinks there is a stone present. It is now five years since the operation. Another patient operated on eight months ago has, every few days, a slight leakage of a few drops of urine, sometimes as much as fifteen or twenty, once or twice during the day. He is able to retain urine for five hours and does not get up at night to urinate. The cystoscope shows a very slight elevation in the median portion of the prostate, which is somewhat irregular. The prostatic urethra is much dilated, and it seems probable that urine occasionally collects in this, is not evacuated completely at urination and afterward escapes through the external sphincter. The patient is improving steadily, however.

The third patient, aged 74, had previously had an internal urethrotomy, a Bottini operation and a suprapubic operation. The prostatic orifice was extremely irregular, and there were deep clefts left by the Bottini. He returned two years after the operation, saying that occasionally there was a slight dribbling and that he was generally able to retain urine for two or three hours. Cystoscopic examination showed that the internal orifice was irregular and somewhat dilated, and in front of it were two or three small urethral prostatic lobulations. With the cystoscopic rongeur these were removed and the patient reports that now, five weeks after this operation, he is practically cured.

In a fourth case the bladder is contracted and its greatest capacity is only 4 ounces. The patient voids urine at intervals of one to one and a half hours, the largest amount passed at one time being 2 ounces. If he voids urine every hour there is practically no leakage, but if he does not there is. He is now 77 years of age.

Two patients had incontinence of urine before operation. One patient was a young man and the bladder contracted, but the cystoscope showed a slight median bar, and the operation was done in the hope that removal of the obstruction would allow the bladder to dilate. The operation was not successful, and incontinence has been a little more marked since operation. The patient is able to void urine at intervals, but if he does not go quickly he is unable to hold it, and on account of a contracted bladder urination is very frequent.

The second patient is a man who had only 180 c.c. residual urine, but continuous incontinence at night and occasionally also during the day before operation. A neurologic examination showed markedly exaggerated reflexes, suggesting spinal-cord trouble. The cystoscope showed a rounded median lobe; this was removed at operation, and the residual urine has disappeared, but the incontinence persists, though at present he says it rarely amounts to more than a few drops. "During the day I void every two or three hours; sometimes I go as long as five hours." The cystoscope showed, several

months ago, an irregular somewhat dilated internal orifice.

I have thus mentioned in detail all these cases hoping that they might throw some light on the question of vesical control. As shown by these statistics, if the operation is carefully done one need not fear incontinence of urine. It seems to be important to preserve the floor of the urethra in the region of the median portion of the prostate. Whether this is due to the nerve-supply or to muscle-tissue which it may contain is uncertain. Contracture of the bladder, severe cystitis with inflammation of the prostatic urethra, probably play an important part in the cases of marked urgency of urination which have just been mentioned, the patients being unable to restrain the outflow of urine when the desire comes on. These cases are not true incontinence, but are often troublesome and difficult to cure. In contradistinction to the cases mentioned above are many cases of incontinence which have been cured by the operation. These were almost always cases with large amount of residual urine and an irregular prostatic orifice. The removal of the enlarged prostatic lobe usually allows the internal sphincter to contract sufficiently to close the orifice completely and continence is regained. One interesting case was that of a man of complete incontinence of urine, locomotor ataxia, 370 c.c. residual urine, a small globular median lobe. The operation was undertaken in the hope that on the removal of the median lobe the orifice would contract sufficiently to cure the incontinence. A recent report, now almost two years since operation, says that the patient is able to retain urine for six hours; that he voids 300 c.c. at a time, and that there is no incontinence. It not infrequently happens that there is a slight weakness of the sphincter for several months after the operation, but, as noted above, in practically all of the cases this completely disappears, and inside of a year the patient, who feared that he was going to have some incontinence, is able to retain urine perfectly. In effecting this restoration of sphincteric control Alexander's plan of voluntarily exercising the muscles (by stopping the flow of urine several times during urination) is of very great value.

Recto-urethral Fistula.—There is only one case in which a recto-urethral fistula is present. This patient had previously had a perineal prostatectomy and a tear was made into the rectum, which, although sutured at operation, failed to heal. In a few other cases the rectum was torn, but was successfully sutured, and there has been no recto-urethral fistula since. If one is careful to follow the anatomic landmarks, to divide the recto-urethralis muscle close to the triangular ligament and to separate the rectum from the posterior surface of the prostate with care according to the technic described, there is practically no danger of rectal injury unless the cicatrix of a previous perineal operation or marked periprostatic adhesions exist. If the rectum is injured a suprapubic operation should be done so as to divert the urine.

The Effect of Perineal Prostatectomy on the Sexual Powers.—Letters with numerous questions in regard to the effect of the operation on erections, coitus, the act of ejaculation, etc., have been sent out to all my patients by Dr. John R. Caulk. He has made a careful summary of the present condition in comparison with that before operation, and I quote at length from his report as follows:

Seventy-six patients, who had stated before operation that erections and intercourse were normal, replied. Of these, 39 say that their sexual powers are unimpaired, erections and coitus being normal. Five say that erections are normal, but that they have not attempted sexual intercourse; 10 that erections are somewhat impaired, but intercourse is nevertheless indulged in and fairly satisfactory; 4 that erections are somewhat impaired, but coitus is not attempted; 5 that erections are present, but so much impaired that coitus has been found impossible; 13 report that erections have not as yet returned; many of these are of the more recent cases.

Among 10 patients who had had normal erections before operation, but did not attempt coitus, 5 report that erections are normal and that intercourse is now indulged in and is normal; 1 that erections are normal, but coitus has not been attempted; 4 that erections have not returned.

Of patients with erections impaired before operation, but coitus still possible, 44 were heard from; of these, 4 have normal erections and coitus; 20, erections impaired, but coitus possible and about the same as before operation; 8, erections impaired, but coitus not attempted; 1, erections impaired, coitus impossible; and 11 that erections have not returned.

There were 13 patients with imperfect erections and coitus not attempted before operation. Of these, 3 report that erections and intercourse have become normal since operation; 7 that erections are still impaired and intercourse not attempted; and 3 that erections have not returned since operation.

There were 10 patients who could not have coitus before operation on account of imperfect erections. One of these reports that erections are now normal and coitus satisfactory; 1 that erections are still impaired and intercourse not attempted; 2 that intercourse is impossible on account of feeble erections; and 6 that erections have not reappeared.

Of 48 patients who had completely lost the power of erections before operation, 2 report that erections and coitus have become entirely normal since operation; 2 that intercourse is fairly satisfactory, but erections are imperfect; 3 that erections are impaired and intercourse not attempted; 3 that erections are impaired and intercourse impossible, and 38 that erections have not returned since operation.

Unfortunately no note was made as to the presence of erections before operation in a good many cases, and some of the other patients refused to answer our questions. We think, however, that the above statistics give a very fair idea of the results obtainable by a conservative perineal prostatectomy in which the ejaculatory ducts and the floor of the urethra are carefully preserved. As the time after operation lengthens the percentage of perfect restorations of sexual powers increases considerably, and it is fair to state that ultimately in about 80 per cent. of the cases in which the sexual powers were normal before operation they finally become normal after operation. Very interesting, indeed, is the demonstration, given in the later paragraphs above, that in quite a number of cases in which intercourse was impossible before operation on account of impaired or absent erections there has been a complete restoration of the sexual powers as a result of the operation. In a few instances in which the patient complained of an impairment as a result of the operation a urethroscopic examination has shown considerable enlargement and inflammation of the verumontanum. A few applications of the nitrate of silver stick has been followed by a return of the erections, and it seems probable that decline in sexual vigor is due largely to disturbances of the verumontanum as in sexual neurasthenias of younger men.

Mortality.—There have been 13 deaths after the operation. This includes every patient who died in the hospital, regardless of the length of time after the operation. Among these 13 there have been only 2 patients who died during the first week, both of them at the end of forty-eight hours, one of acute edema of the lungs and the second of cerebral hemorrhage. In the latter case the patient had had a previous stroke and was in a highly nervous condition before operation, trembling with excitement when the ether was begun, but insisting on having the operation without delay, which he said he could not stand any longer. He never regained consciousness after operation, and examination on the following day showed paralysis of the right leg and arm. There were two deaths during the second week, one on the eighth day of secondary hemorrhage. In this case there was a contracted bladder with a large vesical ulcer and the hemorrhage seemed to come from the bladder. The other patient died on the tenth day from continuous vomiting. He had been subject to attacks of this sort for several years, and autopsy showed extensive dilatation of the kidney pelves, thinning of the cortex and marked destruction of renal tissue. Six patients died during the third week. One who was in excellent shape and almost ready to leave the hospital was given a high enema and collapsed immediately afterward. Autopsy showed pulmonary embolism. The second had suffered from uremia for a long time, and autopsy showed double hydropyonephrosis. The third died of uremia. In this case there was a large residual urine before operation, and the patient did not get the preliminary treatment, continuous catheterization, etc., which is now used. The fourth patient, 79 years of age, died of uremia on the eighteenth day, and the symptoms all pointed to severe kidney lesion. The fifth patient was a man 73 years of age who died of hypostatic congestion of the lungs. The patient was in desperate condition before operation, which should have been delayed. The sixth patient was a man 87 years of age, who had an excellent result from the operation, but acquired pneumonia on the twenty-first day and died on the twenty-fourth day. Autopsy showed consolidation of both lungs.

Two patients died during the fifth week, one, aged 73, of uremia, autopsy showing double pyonephrosis. The second patient, aged 81, died on the thirtieth day from exhaustion, congestion of the lungs and probably uremia. In this case the bladder was very greatly distended before operation. He had not used a catheter and he was not given the preliminary treatment as at present. The thirteenth death was that of a man 88 years of age who had been using a catheter for twenty years and had 14 large stones in the bladder. He died during the eighth week after the operation, when preparing to go home the next day, of successive hemorrhages from the nasopharynx.

A survey of these thirteen operative deaths shows that most of them were, in fact, accidental and not directly attributable to the operation, but, as they occurred after the operation, I feel that they should be included. Although this report includes a period of over six years and many of the patients were very aged men, 12 being over 80 years of age and 109 over 70 years of age, I have been able to get reports of the death of only 38 patients since leaving hospital, there being only 9 cases in which I have been unable to get any recent report. Among these 38 patients who have died since operation there were 11 deaths which occurred within the first six months after operation, 3 between six months and a year, 8 during the second year, 6 during the third year, 6 during the fourth year, 2 during the fifth year, 1 during the sixth year, and 1 during the seventh year. The operative results obtained in these cases are said to have been excellent in 28, good in 3, improved in 5 and poor in 2, in both of which the patients had to use a catheter occasionally before death.

The causes of death were: accident 2, pneumonia 2, uremia associated with myocarditis 4, apoplexy 5, "stomach trouble" 2, acute Bright's disease 1, "spinal-cord disease" 1, pyonephrosis 3, dysentery 1, sudden death, cause unknown 1, uremia with malaria 1, pericarditis 1, heart failure 2, acute edema of the lungs 1, secondary suprapubic operation for vesical calculus 1, cancer of the stomach 1, suicide 2, cause unknown 7. Among the 9 patients who have not been heard from recently, the result was good when leaving the hospital in all cases, and in most of them subsequent reports were obtained several months after the operation which showed that the condition was maintained.

Percentage of Mortality.—Including cases of cancer of the prostate in which the typical operation of conservative perineal prostatectomy was employed, 13 recent cases which have not been tabulated above, 20 cases in which operation has been performed since this paper was written several months ago, and a few cases in which the technic was not the typical one and which have not been tabulated above there have been 400 cases of perineal prostatectomy with 13 deaths, a mortality of 3.25 per cent. All deaths occurring in the hospital, regardless of the time after operation, have been included; no patients sent home to die. During a period of two years and eight months 128 consecutive cases were subjected to the operation of conservative perineal prostatectomy without a single fatal result—all the patients returning to their homes. Forty-three of these 128 patients were over 70 years of age and two were over 80 years of age.

These facts are, I think, sufficient to show that the operation is in itself quite free from danger, and that if preliminary continuous catheter drainage is given, for two or three weeks, to those patients with large residual urine (over 500 c.c.) who have not been previously catheterized regularly at least three times a day, the mortality should be almost *nil*. The operation should be done early, before the residual urine has become large, as this is the greatest danger. In determining the functional capacity in these cases we have found phenolphthalein of great service.

A CASE OF PELLAGRA*

WILLIAM A. HALEY, M.D.
HOUSTON, TEX.

Patient.—A woman, aged 51, past the menopause, the mother of five children, without specific history or history of any special sickness, consulted me in April, 1909, in regard to a "bad feeling," as she termed it, which began about five years before observation (April, 1909). She had lived in the country and in small towns until the family moved to Houston about two years before the time of examination. She was not well nourished and had a "muddy" complexion. She showed marked deliberation in moving and answering questions.

General Treatment and Course of Disease.—I considered the case one of neurasthenia and general debility; prescribed a course of tonic and upbuilding treatment, including the administration of glycerophosphates and Fowler's solution, the use of a nutritious diet, cold shower-baths, massage, exercise and

* Read before the Harris County Medical Society, at Houston, Texas, Jan. 8, 1910.

a sojourn of a few weeks in the country. On the suspicion that there might be some latent malarial element, I also prescribed quinin and small doses of calomel. The patient did not improve but continued to lose weight. Ten or twelve weeks after the physical examination a blood examination was made, which showed no malaria, the hemoglobin 60 per cent., relative leucocytosis, but no further abnormality. Several fecal examinations were made in search for the hook-worm or their ova but none were found. Some time during the middle of September the patient mentioned an eruption about the mouth and soreness of the tongue, which I attributed to the wearing of false teeth. I ordered a mouth-wash, which failed to give relief. Later the patient mentioned an eruption on the back of the hands. This for the first time suggested the diagnosis of pellagra. A marked exaggeration of the patella tendon reflex and ankle clonus was noted. Nothing could be learned about the patient's use of corn-bread, but later I gave her hypodermic injections of atoxyl, half a grain to begin with, increasing to three-fourths of a grain every other day. I also gave Blaud's mass, with arsenic and strychnin. The local condition on the hands, around the mouth and in the mouth improved under this treatment, also the number of bowel movements was reduced from three to six, to one and two in twenty-four hours. (I should have said earlier in this report that among the marked symptoms were slight pain in the stomach and frequent passages from the bowels—four, six and eight on some days.) There seemed to be no improvement in the psychosis, which had developed about the time that I made the diagnosis. The patient continued to lose weight. Just before I began the atoxyl treatment I was called in the night to see the patient, on account of a "sensation of floating," as it were. The patient was considerably distressed; her temperature was 99; pulse 85. I gave a hypodermic of an eighth of a grain of morphin. After a little while the patient was relieved. The atoxyl treatment was kept up at intervals for about a month, and was finally discontinued. On account of some ocular disturbance, which was, no doubt, not entirely due to the atoxyl, I then administered thyroid extract. There was no benefit; the patient continued to grow worse, and was confined to her bed most of the time for three weeks before transfusion was done. Dr. H. P. Cole of Mobile, Ala., being called in consultation because of his experience with this disease, concurred in the diagnosis.

Transfusion.—This was done Dec. 22, at 4:45 p. m. The donor was not a cured pellagrin, but a healthy man, aged 22, a relative of the patient. The method used was direct communication of the radial artery of the donor with the anterior ulnar vein of the patient, under cocain infiltration, 1½ drams of 0.1 per cent. solution for each, the donor and the patient, preceded by a hypodermic injection of morphin. At the time the transfusion was begun the pulse of the patient was 85 and the temperature 99; after it had proceeded about fifteen minutes, the patient mentioned a sensation of warmth about the body; the veins in the forehead and about the face began to be a little distended. At the end of twenty-two minutes and a half the patient now and then took a deep breath; showed slight cyanosis and some restlessness; the pulse had reduced to about 80 per minute. The transfusion was now discontinued. The effect on the donor was slight; he asked for a drink of water at the end of about fifteen minutes; had a slightly intermittent pulse; showed a little pallor about the lips and face. He rested about three or four hours after the transfusion, and suffered no ill effects.

Postoperative History.—The patient rested fairly well for a few hours after the transfusion; nausea and vomiting began a little later the same evening. She slept about one hour during the night. At 3 a. m. temperature was 99 and pulse 75; the patient continued to vomit at intervals; had to be catheterized in the morning. The day following the transfusion, at 3 p. m., temperature was 101; pulse 78; the patient vomited brown material; and brown material was passed from the bowels. The patient was not able to take any nourishment by the mouth. All fluids were discontinued by the mouth and nutritive enemas and saline solution were given per rectum. The second day nausea and vomiting continued. The pulse was 88 and the temperature 99; at 4 a. m. the temperature was 102.8, this being the highest temperature of the patient; the pulse was 80. From that time there was a gradual decline in temperature and pulse, with occasional slight elevations, but never going back as high as above stated. One-thirtieth grain strychnin was administered hypodermically every three or four hours; the patient slept at intervals but continued to vomit, though after the second day did not vomit the brown material. The strychnin and nutritive enemas were continued and saline subcutaneous solution given. The third day after the transfusion of blood the patient was able to take a limited amount of nourishment by the mouth; sat up two hours; temperature was 99; pulse 89. The patient seemed to be doing well until December 29, the seventh day after the transfusion, when she was weak and depressed; temperature was 97; pulse 80; the skin was cold and clammy. On December 31 the patient lapsed into a state of coma. Dr. Cole saw the patient again in consultation and suggested an intravenous infusion of physiologic salt solution. This was administered two or three times during the day, with a small amount of adrenalin solution added. The patient rallied slightly, but never regained consciousness; there was a quick response of pulse, respiration and temperature. The temperature went up to 101.4, pulse 110, with a gradual decline of pulse after the intravenous infusions were discontinued. The cardiac centers but not the respiratory center seemed to be involved, for at the time of the intravenous infusion the pulse could not be felt at the wrist; the heart-beats could scarcely be heard with the stethoscope, yet the breathing was fairly regular until toward the end; then the heart's action suspended entirely; later, the breathing. The patient died December 31, at 8:15 p. m. During the last few days of the sickness it seemed as though all the symptoms of the disease, except the mental symptoms, were markedly exaggerated; with a return of inflammation of the tongue, mouth and the eruption around the mouth and on the hands, together with a cracked condition of the skin on the back of the hands; an intense burning sensation in the feet, while the patient was sufficiently conscious to make mention of such sensation.

DERMATITIS FOLLOWING VIOFORM

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OAK PARK, ILL.

Mrs. N., aged 58, suffering from varicose ulcer, lower third, right leg, was under the care of her family physician for some time. Among the various drugs used was vioform. A few hours after applying this preparation a dermatitis developed which soon became generalized, with all of its concomitant symptoms and in addition both limbs showed below the knees an extensive purpura. This condition cleared up very quickly under withdrawal of drug and proper treatment.

I report this because I think that it is the first case of dermatitis following the use of this drug to be published.

1139 Austin Boulevard.

REPORT OF A CASE, POSSIBLY, OF PELLAGRA

J. SIDNEY EASON, M.D.
SAVAGE, MISS.

Patient.—Mrs. H., aged 34, wife of farmer living in delta.

History.—There is nothing of note in the family history. The patient had had the diseases of childhood. She began to menstruate at 14, and has always suffered with dysmenorrhea. In 1905 she was operated on for salpingitis and since that time has had leucorrhea. In the past three years she has suffered from indigestion and constipation. In 1907 an erythematous eruption appeared on the right foot and spread up to the knee; it was treated as erysipelas. The eruption soon disappeared, leaving the patient extremely nervous and excitable.

Present Illness.—With these exceptions she seemed well until April 10, 1909, when I was called and found her suffering from diarrhea of a severe character. She complained of vertigo, dizziness, and great pain over the right iliac region, and extending

up under the right breast. Temperature was 101 F.; pulse ranged from 130 to 135.

Two days later an eruption resembling erysipelas appeared just below the breast; it disappeared on the second day, and appeared on the right foot as a desquamative erythema, and gradually spread as far as the knee. The patient was poorly nourished, the hair looked dry and lifeless and the skin everywhere had a thick, sallow appearance. Heart and lungs were normal, liver and spleen were enlarged; tongue was heavily coated. The urine was of a deep color but was otherwise normal, though there was great pain on urination. The patient presented generally an appearance of profound melancholia, changing at times to wildest mania, when it was necessary to hold her in bed. She would not talk but often cried out as if wild or in severe pain. The entire body was in a condition of tonic spasm.

Course of the Disease.—The eruption, at first moist, became very dry and darker in color. The skin cracked and on the leg large sloughs separated, leaving raw bleeding surfaces over which new skin formed of a rough wrinkled appearance. The mental and nervous symptoms improved as the patient gained strength and she is now up and seemingly well, though she is still troubled a great deal with indigestion and dysmenorrhea.

NITROGLYCERIN HEAD

C. E. LAWS, M.D.
DU PONT, WASH.

"N. G. head" is a term well known to all who are engaged in the manufacture and use of high explosives. Those who are most frequently and severely affected are men employed in dynamite and gelatin factories, miners and excavators who do blasting.

The nitroglycerin enters the system through the skin, respiratory and alimentary tracts. A man who is working in "powder" may cause another person a great deal of misery by simply shaking hands or by permitting articles which he has been using to be handled by the other. A worker frequently carries some of the drug to his home in his clothing and may make his whole family sick. Sleeping in the same bed or the wearing of contaminated clothing will likewise produce effects. Miners and men in the magazines, especially on hot days, are poisoned by the fumes. It frequently becomes necessary to taste the nitroglycerin, and symptoms quickly manifest themselves.

Symptoms.—Within a period ranging from a few minutes to an hour or more after exposure the person experiences a sense of heat with fulness in the head and possibly a flushing of the skin. If the heart is examined now an increased action will be noted, but this is followed by a marked retardation. One premonitory symptom noted by many is a complete loss of vision either in one or both eyes, the headache not coming on until complete restoration of sight. The most distressing and dreaded symptom is the headache which rapidly supervenes. Owing to the direct action of the drug on the muscular coats of the arteries there is a marked dilatation of these vessels. To this dilatation of the vessels of the brain and cord may be laid the cause of the throbbing which the poor sufferer experiences. He holds his head between his hands to relieve it, and when he steps on the ground or attempts to stoop over he often cries out with pain. Sometimes he becomes maniacal, running about, shouting and striking his head against obstacles. The recumbent posture is often unbearable and he must pass his time in the upright position, sleep being out of the question. The pain is sometimes located in the back part of the cranium, sometimes it is frontal and at others general. The duration of an attack is from a few hours to one or two days. Nausea and vomiting with loss of appetite are frequent symptoms.

The genitourinary system comes in for its share of disturbance, too, there being frequent urination with the passage of large quantities of light colored urine of low specific gravity. Nitroglycerin is a marked aphrodisiac and most "glycerin men" have large families.

The effects of the drug are interesting. All who work in it are sooner or later troubled with dyspnea and tachycardia on exertion. Alcohol causes a flushing in some that very much resembles scarlet fever. Others are unable to touch it at all and it is a well known fact that "powder men" become easily intoxicated.

I am unable to say what effect it has on the length of life, but I know several men who have been in the business for many years, one in particular who enjoys excellent health after twenty-five years' service, with the exception of shortness of breath on any undue exertion. There is an increase in the area of heart dulness and a rather slow pulse.

Some people enjoy a natural immunity to the action of the drug while others must acquire it and the process is painful. After being out of it for one day sometimes, a man goes back to work and becomes sick. This attack, however, is comparatively slight and he can continue without much inconvenience. Others, while not working, will rub a small amount into the skin or keep some on the hat band so that they may always be in condition.

Treatment.—This is most unsatisfactory, and there is apparently nothing that will give the poor sufferers relief. In slight cases in those who are more or less accustomed to the drug, a hearty meal and a good sleep will straighten them out, but in the severe cases all the remedies suggested, such as phenacetin, chloroform, morphin, etc., have little or no effect. Hot baths do well in some cases but a warm atmosphere aggravates the symptoms. Many "patent-medicines" have been recommended but none of them are of any use.

It is said that nitroglycerin was at one time exploited as a cure for headache and it probably did well in chronic renal degeneration with high tension pulse.

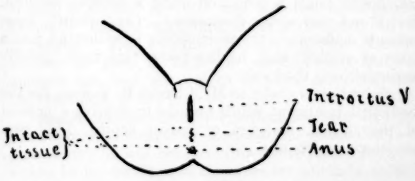
I can find no mention of an antidote in the literature and if any one should discover it he would at least have the gratitude of many thousands of "powder men."

AN INTRAPERINEAL TEAR

A. PIETRI, M.D.
PONCE, PORTO RICO

Patient.—At 2 o'clock one afternoon I was called to see a woman who had given birth to a 20-inch normal child early that morning. The woman was a primipara, aged about 20, and of healthy, strong constitution.

Examination.—On examination I found an ugly tear through the perineal floor in the median line, not extending to the anus or involving the vaginal outlet. The approximate position and size of the laceration are shown in the accompanying diagram.



The introitus vaginæ was very small and inelastic. The laceration had occurred through the raphe. Birth occurred through the tear and not through the introitus.

History.—The delivery had been rapid—four hours—and the pains and efforts at expulsion had been violent. The woman had been attended by a friend who was not even a midwife.

Treatment.—At the first visit the parts were so edematous and swollen that immediate repair was inadvisable. A few days later the laceration was sutured, though by this time the tissues between the tear and the introitus had sloughed away. Recovery was uneventful and a good perineum was secured.

32 Isabel Street.

Therapeutics

THE DRUG TREATMENT OF ALCOHOL, MORPHIN AND COCAIN HABITUES

The treatment of acute alcoholic excess is pretty generally understood and generally well carried out. The removal of the craving for alcohol and the length of time that the patient will abstain from alcohol depend largely on the suggestions of the treatment, the physician in charge and the character of the institution in which he was treated. In other words, it is largely mental impression.

The drugs used in the treatment of the alcohol habit have generally been kept secret, but atropin in some form has been frequently used and seems to have the greatest success to its credit.

Dr. Alexander Lambert, of New York, published his method of treatment in THE JOURNAL, Sept. 25, 1909, and has again discussed it in the *New York State Journal of Medicine*, January, 1910. He has long made careful study of alcoholics in his hospital wards, and speaks with authority, and lauds the treatment with which he has had great success.

He finds that during the last twenty years young men are less likely to become alcoholics than older men, as there has been such a tendency, in many occupations, not to employ men who were addicted to the use of alcohol. Lambert finds alcoholics most likely to be among men who work overtime or under great strain, as "journalists, actors, and physicians." Sometimes "clerks, bookkeepers, accountants, and stenographers," who are looking for excitement, get into the alcohol habit. Also occupations that cause great physical exhaustion, as "stokers, firemen, blacksmiths, iron and brass molders," and those who are working over furnaces or in heated places become alcoholics. Another class who tend to drink too much are those who at times work hard, this to be followed by a period of idleness, as "hostlers, hackmen and teamsters." Among women, "domestic servants and prostitutes" head the list.

As Lambert well says, the mere temporary cure of the desire for alcohol should be by no means the end of the treatment of the patient. This, however, is a moral and social question that would be inappropriately discussed here. The craving for alcohol can undoubtedly be removed in patients who do not have periodic attacks of this desire (such a condition being a nervous affection that is not now under discussion). Consequently these patients deliberately try their ability to withstand just a taste of alcohol, and, having taken this taste, quickly again fall into the habit.

Lambert gives credit to Mr. Charles B. Townes for the medicinal treatment which he uses to deprive a patient of the alcohol, morphin or cocain habit. This prescription consists of:

℞.	c.c.	
Tincturæ belladonnæ (15 per cent.)	20	fl.5v
Fluidextracti hyoscyami	10	or
Fluidextracti xanthoxyli	10	āā, fl.3iiss

M. et Sig.: Administer as directed.

Lambert emphasizes the necessity of carrying out his treatment absolutely to the letter, and an important part of the treatment is profuse catharsis. In alcoholics "from 6 to 8 drops of the above prescription are given every hour, day and night, until either the patient shows symptoms of belladonna excess, or from the cathartics the characteristic stool." The dose of the above "is increased by 2 drops given every six hours until 14 to 16 drops are being taken; it is not increased above 16 drops." Lambert says that "usually an alcoholic can be given 4 compound cathartic pills at the same time that the specific is begun. After the drops have been given for fourteen hours, a further dose of compound cathartic pills is given, either 2 or 4, depending upon the amount of action obtained from the previous pills. If the first pills have caused abundant action, only 2 are now necessary. At the twentieth hour of the drops, from 2 to 4 more compound cathartic pills are given, and after these have acted, the stools should begin to be green. An ounce of castor oil should now be given, and a few hours later the characteristic thick green mucous, puttylike stool will appear. Usually the drops must be continued, and at the thirty-second hour from 2 to 4 compound cathartic pills are again given, and a few hours later the castor oil. The drops can now be discontinued."

Usually in treating alcoholics stimulation is necessary, and it may be necessary to give a hypnotic, but such treatment will not interfere with the administration of the above. "In the first twenty-four hours with an older patient, or one in the midst of a spree, whisky should be given four or five times, in 1 or 2 teaspoonful doses, in milk. The whisky should not be continued after the first twenty-four hours, and in younger patients it is usually not necessary to give it at all.

"The belladonna symptoms which would cause the drops to be stopped until they had subsided" are, extreme dryness of the throat and beginning delirium and appearance of the belladonna rash or scarlatiniform redness of the skin. An alcoholic is less tolerant of belladonna than a morphin patient, but Lambert says "if they are sensitive to this drug they will show it in the first six or eight hours of the treatment."

He states that after the patient has been through with this treatment the desire for alcohol has ceased, and that it is a question for the next few days of proper nutrition, and sometimes the administration of a drug for sleep. He finds the best hypnotics for these alcoholics are chloral and bromids. Whatever tonic is given of course must be non-alcoholic.

In October, 1909 (*Monthly Cyclopedia and Medical Bulletin*), appeared an article by Riewel, of Cleveland, Ohio, discussing the scopolamin (hyoscin) treatment of those addicted to the overuse of alcohol. He quotes a number of writers on this treatment, and the summation shows that the treatment is one of "a combination of 1/100 of a grain of scopolamin, 1/500 of a grain of atropin, and 1/60 of a grain of strychnin, every two to four hours." Here again, then, is an atropin treatment of alcoholism.

It does not seem that there should be any mysterious halo surrounding a 15 per cent. tincture of belladonna as against the pharmacopeial 10 per cent. (provided that more is used), or that the fluidextract of hyoscyamus would act any differently than the tincture, or perhaps better still hyoscin (scopolamin), or in the fact that belladonna is any better than the alkaloid atropin, or that the very few drops of the fluidextract of xanthoxylum (the dose of which as a bitter tonic, with perhaps slight irritant properties, is 2 c.c. (30 minims or ½ a teaspoonful)) can be of any specific value, as from every physiologic and pharmacologic standpoint it cannot be.

The treatment, then, is an atropin treatment, with such stimulation as is required, perhaps strychnin, with such added atropin-sedative (hyoscyamus or hyoscin) action or perhaps some more active hypnotic, to the point of atropin tolerance. The symptoms looked for are those

of atropin poisoning. The antidote to the high blood pressure, the cerebral congestion, and the dry skin from the atropin is caused by the prostration which must necessarily be produced by the severe catharsis that is advocated. Such catharsis is evidently a necessary and valuable adjunct to the treatment. Whether the compound cathartic pill is *the* means of producing it, or whether saline cathartics could be used is a question for the individual choice.

The treatment that Dr. Lambert advises is atropin or associated atropin to the point of tolerance, administered hour by hour, the patient thus being ably watched and cared for, and the production of sufficient and profuse catharsis.

Lambert finds that most patients who become morphinists have acquired the habit by accident, mostly through the attempt to stop pain, sometimes he thinks by the careless prescription of a physician. This emphasizes the necessity of teaching medical students, that they should rarely if ever write a prescription for morphin, but should always give the patient or nurse, from their pocket case, the morphin tablets required.

By the method which Lambert advises patients "do not suffer more than a bearable amount of discomfort" in breaking away from the drug. "Before beginning the treatment, the patient is made comfortable with his accustomed dose of morphin, and then given 4 or 5 compound cathartic pills. When these have acted, the drops should be given as prescribed for alcoholics. Of course if there is a hypersensitiveness to belladonna (atropin), the drops must be stopped and later begun again at a smaller number. After the drops have been started and the time has come for the patient's usual dose of morphin, he should receive "from one-half to two-thirds of the kind of opium that he has been taking, and administered in the manner that he has been administering it. (The above amount should be divided into three parts and given at half-hour intervals.) After fourteen hours of the drop treatment, the patient should be given 4 compound cathartic pills and 5 grains of blue mass, or some other form of vigorous cathartic such as the vegetable cathartic pills of the Pharmacopeia with ginger and capsicum and 1/25 of a drop of croton oil to each pill. Four or 5 of these last pills should be administered, if preferred to the compound cathartic pills and blue mass. After the twentieth hour of the drop treatment the patient should receive 4 or 5 more of the vegetable cathartic-ginger-capsicum-and-croton-oil pills and blue mass, and, if these do not quickly act, they should be followed by 4 or 5 compound cathartic pills and then an ounce of Epsom salt or Hunyadi water every half-hour for four or five doses. If in an hour or two these do not act, 4 or 5 more of the vegetable cathartic pills, followed by the salts, should be persisted in until the bowels act." Lambert well says that this cathartic treatment will appear to be extraordinary, and it is surprising that the withdrawal of the morphin does not of itself produce a diarrhea. The inhibition can only be due to the atropin. Lambert says that "if by the twentieth hour the cathartics do not act the symptoms of the reduction of the morphin, viz.: sneezing, nervousness and pain, come on in full force, and the patient begins to suffer. If the cathartics do act well, a second dose of morphin or opium should be given of about 1/3 or 1/6 of what was given as the initial dose at the beginning of the treatment. Twelve hours after this second dose of morphin or opium the patient should again have 4 of the vegetable cathartic pills, each with ginger and capsicum and 1/25 of a drop of croton oil, or 4 compound cathartic pills with the 5 grains of blue mass, and following this the stools will begin to be green. After the liquid green stools have occurred following the thirty-second-hour cathartic, an ounce of castor oil should be administered, and will cause the thick, green stool" as described under alcoholic treatment. After this movement, Lambert says, the patients feels "suddenly relaxed and comfortable and the nervousness ceases." Most patients then go to sleep. After the thirtieth hour of such treatment, and he well says earlier "if the patient is in a weak condition, stimulation with strychnin, from 1/60 to 1/30 of a grain, is advisable."

Turning again to Riewel's article, we find that the hyoscin (scopolamin) treatment of morphin addiction which has been studied by him gives successful results by first administering calomel, followed by Rochelle salts, and then giving in a typical case a hypodermic of 1/200 of hyoscin hydrobromid, 1/600 of atropin and 1/200 of strychnin, and repeating this every 1½ hours for eight doses; "then one-half of this dose every hour and a half for a time, and then increased again to the full dose every hour and a half. After the treatment is over, patients who cannot sleep should receive for one or two nights either trional, chloral, or bromids. If delirium occurs from the hyoscin or atropin, the amount must be reduced, but at any time that delirium becomes serious ¼ of a grain of morphin will stop it." This hyoscin treatment, Riewel says, will eliminate the desire for the drug. He cautions against using this treatment when there is Bright's disease.

Again we have the atropin treatment, which is the physiologic antidote for morphin, in the one instance preceded by free catharsis, and in the other free catharsis given throughout. While it seems advisable to give mercury in some form to act on the upper intestine and relieve the kidneys of congestion and remove the old bile, which will aid the liver in performing its effective physiologic work, still the particular cathartic selected must still be a matter of individual choice. Lambert has demonstrated that atropin will at least temporarily cure morphinism with the aid of free catharsis.

In treating patients for the cocain habit, which, by the way, is usually associated with the morphin habit, Lambert has found that the beginning dose of morphin should be less than when the patient has been taking the morphin alone, the cocain having been a sort of antidote to the intensity of the morphin action. The cocain should be stopped abruptly, and therefore these patients generally require strychnin stimulation early in the treatment. The amount of morphin that Lambert advises at first is half the usual twenty-four-hour amount, the dose being given as above described under the treatment of morphin addiction.

Lambert thinks that if the patient has been free from his desire for morphin or morphin and cocain for forty-eight hours he will not have this desire return for years, unless he has a return of the cause for which he used the morphin, viz.: acute pain, insomnia, sorrow or worry, and he believes that 85 per cent. of patients cured of this narcotic remain cured. This seems to be a very high percentage, and the experience of most of us would make this number little more than 50 per cent.

Those patients, however, who have had the cocain habit alone are much more likely to relapse, as they have probably taken the cocain for mental depression or for physical bracing. Of course, after the desire has been temporarily removed, unless the environment of the patient is changed or he is put into better physical condition, the same old craving for stimulation will recur.

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THE AMERICAN MEDICAL ASSOCIATION—ITS POLICIES AND ITS WORK

I. THE OPPOSITION AND ITS CAUSES

The proprietary medicine business, until within the past five years, had a most phenomenal growth and one which, considering the viciousness of the traffic, would have been impossible had it not been immensely profitable. The large returns drew to its ranks men without knowledge of medicine, pharmacy or chemistry, men who not only put up preparations for the medical profession to use, but also had the presumption to attempt to teach physicians how to use them—how to treat disease. Reputable manufacturing pharmaceutical houses, finding the demand for official and non-secret drugs falling off, were, one by one, almost forced by economic conditions into the secret proprietary business, until finally there was hardly a pharmaceutical concern that did not have many typical nostrums in its lists of "specialties." THE JOURNAL, like other medical journals of that time, accepted advertisements of proprietary medicines which later proved to be fraudulent; there was no standard and no means of distinguishing the good from the bad. Thinking members of the medical profession realized the conditions and continually protested against them. The evil was discussed in society meetings, often with emphasis, but the agitation usually ended only in discussion, while such criticisms were smoothed over or eliminated when the reports of the proceedings appeared in medical journals.

The proprietary "interests" were so powerful financially, they ramified in so many directions, and they affected so many in the medical profession itself, that the problem of attacking the evil seemed too large and too difficult, and the only result to be expected was failure, with vilification and abuse as the lot of those who attempted it. However, after much deliberation, and with due regard for the attempts that already had been made, and especially with a full appreciation of the opposition to be expected and of the difficulties to be met, the movement against this evil was started by the formation of the Council on Pharmacy and Chemistry of the American Medical Association. The announcement of the creation of this Council was received with great satisfaction by many, but encountered sneers, derision and open opposition, not only from the interests directly affected, but also from many medical journals. Nor did this journalistic opposition come entirely from publications whose paid subscription lists were insignificant and which absolutely owed their existence to their advertising patronage; it came, too, from some which were well supported by the medical profession. A defunct journal was resurrected by a certain group of nostrum-makers to oppose the movement. In it the members of the Council, and especially its chairman, were ridiculed, cartooned and maligned. Since then scores of so-called medical journals have apparently existed for the sole purpose of attacking the American Medical Association and its officers, and of obstructing its efforts—and very naturally so, since such journals derive most of their support from those who are exploiting the profession.

About this time *Collier's Weekly* published that remarkable series of articles by Samuel Hopkins Adams called "The Great American Fraud." The "patent medicine" people soothed themselves with the belief that the articles and the lessons they taught the public would soon be forgotten, as they undoubtedly would have been had they been allowed to remain as ephemeral newspaper matter. But the American Medical Association, obtaining permission to issue these articles in book form, published and distributed them by the thousands. The facts presented were thus preserved in the hands of individuals and libraries all over the country and became a permanent and ever-living evidence of the fraud and viciousness that is inseparable from the "patent medicine" business, and of the gross impositions practiced on the public.[1] In addition to the exposures made by Mr. Adams, the chemical laboratory of the Association has been analyzing a host of "patent" and proprietary medicines, and THE JOURNAL has insistently and persistently tried to enlighten the public regarding this evil.

Naturally, therefore, the "patent medicine" people were aroused, individually and collectively—as the Proprietary Association of America—and endeavored to poison the minds of the public against the American Medical Association. Pamphlets of various kinds have been—and are still being—sent broadcast, such, for example, as "The Political Doctors," "Confiscatory Legislation," "The Machinations of the American Medical Association," "The Legislative Schemes of the American Medical Association"—and numerous others. The newspapers, especially, have been furnished with all kinds of misinformation regarding the American Medical Association and about what it is doing, but, happily, the majority of newspaper editors saw the animus back of it. A few, not knowing the facts, have said harsh things, using the material furnished them by the interests affected to attack the Association and the profession generally.

Thus, two directly related interests—the so-called ethical proprietary business and the "patent medicine"

1. How far-reaching an effect this has had may be imagined when it is realized that over 150,000 copies of this book have been printed. The wide-spread spontaneous demand for the book has been most gratifying. One disinterested layman alone purchased 45,000 copies for free distribution.

business—by fair means and foul have done their best to discredit and injure the Association. The former was—and still is—supported by a large number of journals, of small circulation, it is true, supposed to represent the medical profession; the latter, by the cheaper class of newspapers, influenced largely by the lure of advertising contracts.

Nor are the proprietary and "patent medicine" interests the only ones whose fraudulent profits have been cut down through the exposure of their methods by THE JOURNAL. After a campaign of public education lasting several years, Congress passed the Food and Drugs Act, and its passage was due in no small degree to the influence of the American Medical Association, with the help of the members of its constituent state and component county societies. Since its enactment THE JOURNAL has exerted even greater influence for the pure food law's honest and impartial enforcement; and this also has aroused the enmity and active opposition of manufacturers and dealers in sophisticated foods.

Thus—to say nothing of the unfriendly attitude of some of those connected with certain low-grade medical schools whose shortcomings have been shown up in THE JOURNAL, and without including the owners of the medical journals affected—there are three financially and politically powerful commercial interests combined for the common purpose of attempting to discredit and to weaken the Association and to obstruct its work. Failing to produce any result and finding that their onslaughts on the Association only drove the profession into closer alliance, they pursued another course.

In the fall of 1908 some letters addressed to the president of a pharmaceutical concern, whose methods had been given unpleasant notoriety in THE JOURNAL, revealed the fact that a concerted attack on the editor of THE JOURNAL was under discussion. Their tenor was: "Stop attacking the Association, as you will do no good. Center it on Simmons, for he is responsible." Shortly after this, information was received that the individual to whom the letters were addressed, both by personal effort and through the efforts of detectives, was endeavoring to find something in the editor's life that might be damaging to his reputation.

Material obtained by going back thirty-eight years or more was craftily arranged by a Chicago physician and was worked up so as to make the most damaging "case" possible. Articles were published in such of the cheaper medical journals as would print them, "addresses" were delivered before such medical societies as would tolerate them, newspaper interviews appeared and, especially, thousands—yes, hundreds of thousands—of pamphlets and reprints were circulated with an extravagance that indicated that expense was no object—all these methods were used to make public the matter which had been so assiduously collected. It is probable that during the last two years more money was spent in detective work, in printing and in postage in an attempt to blast the reputation of the editor of THE JOURNAL than ever before was expended for a similar purpose. Being personal in character, this matter naturally could not be discussed in THE JOURNAL.

That these attacks were received with joy and utilized to the fullest extent by the proprietary and "patent medicine" interests goes without saying; in fact, the very "consumption cure" concern which we expose in this issue went so far as to reproduce in a newspaper advertisement the photograph of the physician circulating this matter and to extol him in these words: "For him to expose the methods of the A. M. A. is a Godsend to every consumptive, as it clearly shows why the medical profession at large does not recommend Nature's Creation." And more recently the American Druggists Syndicate, because THE JOURNAL has made clear the fraud, misrepresentation and deceit connected with its "patent medicine" business, has been using the material with absolute disregard of expense, circulating it among physicians and druggists throughout the country.[2]

These attacks, of course, have been regarded as a part of the general scheme of retaliation of those whose financial interests were being injured through the work of the Association; in a word, as coming from enemies who have good cause for fighting back.

II. THOSE RESCINDED RESOLUTIONS

From what has been said above, opposition and retaliation are to be looked for from those interests whose commercial existence is threatened by the work of the American Medical Association. Such enemies and such opposition were to be expected and could, therefore, be reckoned with. An attack from within the ranks of the profession itself, however, is another matter. When, furthermore, it comes from one of the most progressive component county societies, and one in whose territory is located the headquarters of the Association, the matter deserves comment.

The Council of the Chicago Medical Society, at its January meeting, adopted certain resolutions which purported to be based on the preamble that:

> "Certain conditions exist which menace the best interests of the American Medical Association and of the medical profession at large."

These resolutions[3] were published in the society's *Bulletin* and copies of them were sent officially to the various state society journals. Unofficially, typewritten copies were sent—some at least in envelopes bearing the address of the individual who is reported to have made the original draft of the resolutions—to medical journals all over the country. Incidentally the matter appeared with appropriate headings in the Chicago newspapers of the morning following. The resolutions were rescinded at the next meeting of the Council, but the publicity given their adoption was strikingly absent in their rescindment. Because these resolutions have furnished the enemies of the Association with ammunition that is being

2. See letter and comments in THE JOURNAL, February 19, p. 629.
3. The resolutions appeared in THE JOURNAL, Jan. 29, 1910, page 382; notice of their rescindment appeared in THE JOURNAL, Feb. 12, 1910, page 543.

and will continue to be used against it—as those who inspired them undoubtedly intended they should—it seems wise to give some consideration to what—in view of the fact that they have been rescinded—would ordinarily have required no comment.

Many—in fact most—of these resolutions dealt with matters of Association policy, matters which have been up for consideration time and again and have been discussed *pro* and *con*. They are matters on which an honest difference of opinion may well exist and are very proper questions for consideration if discussed by those having a full understanding of the points involved. Whether, for instance, one person should be permitted to hold at the same time more than one executive or honorary position in the Association; whether the office of general secretary and the position of editor should or should not be separated; whether the number of trustees should be increased or decreased; whether the initiative and referendum are feasible and desirable—all these are questions on which there may easily be differences of opinion. With such we may deal at length in the future.

A few of the resolutions, however, dealt not with matters of policy, not with theories, but with matters of demonstrable fact. To consider these in detail:

"All officers and employees whose duties involve financial responsibilities should be bonded."

The answer to this implication is simple and short: All such officers and employees are bonded and for years have been.

"The law governing admission to membership in the American Medical Association should be so amended as to make it mandatory on the secretary to enroll applicants who have complied with the provisions and by-laws governing the same."

The secretary never has refused to enroll such applicants, and under the present by-laws which have been in force for years, could not if he would.

"Space should be set apart in THE JOURNAL for free and courteous discussion of the policies and methods of the Association or for any other matters that may appeal to the membership at large as bearing on the interests of the Association."

Such space always has been available and never has been denied those who wished courteously to present matters of interest to the Association. What constitutes "matters of interest" always has been and always must be determined by the editor—past, present or future—that is one of an editor's functions. Any other method of conducting a journal would result in chaos.

"No member should be expelled from the Association without a fair trial and full hearing."

Under the present laws, and they have been in force for years, no member *can be* expelled from the Association, either with or without trial, for the American Medical Association has no voice in the matter. Right to membership in the Association depends entirely on membership in the county society, and when a physician ceases—voluntarily or involuntarily—to be a member of his county society he thereby loses his right to membership in the state society and in the American Medical Association.

The reason space is given to a consideration of the foregoing resolutions is not only that the direct statements contained therein are misleading or absurd—and they are both—but that each one carries with it an implication—more or less veiled—of official negligence or dereliction. The resolution regarding the bonding of employees implies that responsible officials are not bonded; that dealing with the enrolment of members gives the impression that the secretary has refused to enroll applicants who were eligible; that providing free discussions in THE JOURNAL insinuates that freedom of discussion is not to be had; that referring to loss of membership intimates that the Association has not only the power to expel its members, but that its members actually have been expelled without a "fair trial and full hearing"—all of which implications are false and unwarranted libels on the Association and its officers.

If the majority of those members of the Council of the Chicago Medical Society who voted for these resolutions had realized what there was behind them, then the only explanation of their action would have been that of sheer maliciousness. But we believe—in fact, we know—that many of those who voted for them had no clear conception of the conditions which were supposedly under consideration. With an honesty of purpose that was superior to their judgment they allowed themselves to be used as catspaws to pull out of the fire the chestnuts of personal spite of one or two individuals. That they did so was unfortunate in that it gave the common enemy reason for rejoicing and lent color to the rumor so assiduously promulgated by the proprietary and "patent medicine" interests that there are internal dissensions in the American Medical Association—a rumor which is as false as it is persistent.

We know that the medical profession has never been so united as it is to-day; we know that the attempts to better the scientific, economic and social conditions in the profession itself are receiving hearty support and cooperation; we know that the campaign against fraud and deceit in proprietary medicines is meeting the approval of all right-thinking physicians; we know, in fact, that the great mass of the medical profession of the United States is heartily in sympathy with the critical and constructive work which the American Medical Association is doing through THE JOURNAL and through its standing boards and committees—and this knowledge is in itself an inspiration to larger and better things.

That the organization which has grown so wonderfully in the past decade is capable of improvement, none realizes more keenly than those who have so earnestly striven to perfect it; that criticisms and suggestions will help to bring about such readjustments in the machinery of the Association as changed conditions make necessary, its best friends have always maintained; that such criticisms and suggestions are, and always have been, welcomed by those to whom the Association has intrusted its executive work, goes without saying. But while all this is true no one will question the principle that for criticism to be of

any value it must be of a constructive and not a destructive nature, and, further, that it must come from those who are at least fairly familiar with the conditions which it is desired to better. To suggest changes in the constitution and by-laws of an organization for no other *actual* purpose—whatever the nominal purpose may be—than that of satisfying personal pique or for political expediency, is not criticism—it is denunciation. That opposition should have developed is not to be wondered at, rather is it to be welcomed; it is only moving bodies that meet resistance. That self-seeking or revengeful individuals should ally themselves with the open enemies of the profession is not surprising, but once their object is made clear they cease to be a menace.

One thing the passage of these resolutions shows: The rank and file of the Association are not as familiar with the details of their great organization as they should be. If men of more than ordinary intelligence and ability, such as those composing the business body of the Chicago Medical Society, could be misled on points so fundamental and elemental in nature, then it is safe to assume that a great majority of the members of the Association need to be better informed about the Association itself. This being so, we purpose to review briefly, in future issues, the history of the American Medical Association and its development during the past ten years and show what has been, and is being, accomplished in the interest of both the medical profession and the public.

HYDROPHOBIA

The importance of a disease is not to be measured altogether by its frequency; its effects in individual cases are also to be reckoned. When a disease like hydrophobia is apparently on the increase it is a health problem of some urgency. The statistics in Dr. Frothingham's paper in this issue of THE JOURNAL show a rather formidable prevalence of the disorder in certain parts of the country. Kerr and Stimson[1] state that there were one hundred and eleven deaths from hydrophobia in 1908, and that the number of deaths from this cause in the registration area in 1906 and 1907 (eighty-five and seventy-five, respectively) was almost double the number in any previous year since 1900. The health authorities of several of the states have also called attention to this fact. Rabies exists in nearly every portion of our country, and Dr. Frothingham could have added Alaska to the political divisions where it is found, as enumerated by him. It is probably endemic in the arctic regions, especially if we are to consider, as it seems we should, the distemper noticed by Dr. Kane and many others since him, which carries off a large portion of the dogs in Alaska every year.

A recent writer[2] questions the rabic nature of this disorder on the ground that human beings bitten do not apparently contract the disease. This can probably be accounted for by the fact that they are seldom bitten except through the heavy clothing worn in that region; it is a well-known fact that a large proportion of those bitten in other climates are protected the same way. Dr. Howe's description in other respects is that of rabies. The disease was, at least formerly, dreaded by the Eskimo in some parts of Alaska, and undeniable typical hydrophobia also occurs in that region. In short, so far as can be learned, in the territory of the United States only the Rocky Mountain and Pacific slope regions are free from the disease.

It must be regarded as most unfortunate that in many of our communities indifference and an unenlightened or perverted sentiment of compassion for animals should hinder the adoption of the reasonable methods of prevention which have exterminated the disease in Great Britain, namely, destruction of infected animals and proper muzzling of all dogs in infected areas. Even locally applied, these measures would still be of great value in reducing the danger of infection. It is also unfortunate that incredulity as to the existence of rabies or hydrophobia should be professed, even by a few physicians. The conversion of one of these to the opposite opinion by the occurrence of a case in his own family, extensively noticed in the medical and lay press a few years ago, points a moral, obvious but, it is to be hoped, less and less necessary among the medical profession and the intelligent public.

1. Kerr, J. W., and Stimson, A. M.: The Prevalence of Rabies in the United States, THE JOURNAL A. M. A., Sept. 25, 1909, liii, 989.
2. Howe, G. B.: In Mikkelson, Conquest of the Arctic.

Medical News

GEORGIA

Personal.—Dr. Russell B. Moore, Auburn, is reported to be dangerously ill.——Dr. Spurgeon Williams, Winder, is convalescent after smallpox.

Medical Society Election.—The Fourth District Medical Society held its fifth semi-annual meeting at Newnan, February 15, and elected Dr. T. Neal Kitchens, Columbus, president, and Dr. Theodore B. Davis, Newnan, vice-president.

State Sanatorium Trustees Meet.—The trustees of the State Tuberculosis Sanatorium held their annual meeting, February 15. Capt. W. C. Raoul reported that a desirable site had been purchased and plans for buildings had been adopted, with still a balance of $19,000 to be put into the buildings before the institution could be opened for the reception of patients, but that still further appropriations would be necessary. The following officers were elected: Dr. Thomas R. Whitley, Douglasville, president; Hon. T. D. Tinsley, vice-president; Dr. Marcus F. Carson, Griffin, secretary; Mr. J. T. Orm, treasurer, and Capt. W. C. Raoul, Hon. T. D. Tinsley, and Drs. Charles H. Richardson, Montezuma, Henry R. Slack, LaGrange, and Jeff Davis, Toscoa, executive committee.

ILLINOIS

Quincy Doctors' Club.—At an informal meeting of ten physicians of Quincy, held February 16, the organization of a physicians' club was considered. Dr. Thomas B. Knox acted as chairman and Carl W. Pfeiffer as secretary. Drs. Knox, John A. Koch, John K. Reticker and Kirk S. Shawgo were appointed a committee to present the matter to the physicians of the city and report at a subsequent meeting.

Personal.—Dr. Frank H. Jenks has been appointed superintendent of the Elgin State Hospital, vice Dr. Vaclav H. Podstata, resigned. The appointment becomes effective March 15.——Dr. William R. Patton, Charleston, is reported to be seriously ill in Washington Hospital, Los Angeles, with

rheumatism and erysipelas.——Dr. Charles E. Crawford, Rockford, inspector of the State Board of Health, has gone to California for a rest of several weeks.——Dr. Jacob Huber, Pana, has deeded to the local grand army post five acres of land adjoining the city for a park.——Dr. Joseph G. Kilgore, Vermilion, is reported to be critically ill with pneumonia.——Dr. Leslie A. Beard, Polo, underwent operation at Mercy Hospital, Chicago, February 15.

Chicago

Personal.—Dr. Henry Banga is ill in Michael Reese Hospital with septicemia due to an operation wound. He has been in serious condition but is now improving.——Dr. Gottfried Koehler, as the result of a recent civil service examination, has been named deputy commissioner of health to succeed the late Dr. Frank W. Reilly.——Dr. William A. Evans, health commissioner, has gone to New Orleans where he will have conferred on him the degree of LL.D. by his alma mater, Tulane University.——A diamond-studded gold watch was given Dr. Theodore B. Sachs by the board of directors of the Winfield Sanatorium for Consumptives, February 22.——Dr. Byron Robinson is reported to be critically ill at his home in River Forest.

INDIANA

New Hospital for Crawfordsville.—The plans for the new buildings of the Methodist Hospital, Crawfordsville, have been completed. The buildings will cost $130,000, and will accommodate 70 patients.

Site Selected for Sanatorium.—A site has been selected about ten miles southwest of Delphi on a high bluff overlooking the south fork of Wildcat creek, for the location of the Lafayette Tuberculosis Sanatorium.

Opposes Intern Tests.—On the suggestion of Dr. William N. Wishard, Indianapolis, it is probable that another method than the competitive examination will be adopted for the selection of interns for the Indianapolis City Dispensary and City Hospital. As there is but one medical school, the ordinance providing for competitive examination is not considered necessary, as the grade made in the final college examination or before the State Board of Medical Examination and Registration may properly be taken as a basis.

Personal.—Dr. Charles S. Woods has been appointed city sanitarian of Indianapolis, Dr. Frank L. Truitt, city pathologist, and Dr. Eugene B. Mumford, inspector of contagious diseases (reappointed).——Dr. Ernest R. Sisson, Greenfield, who has been seriously ill in Indianapolis, is reported to be convalescent.——Dr. William F. King, Columbia City, has been appointed assistant state health commissioner.——Dr. John N. Records has been appointed postmaster of Franklin.——Dr. Edward P. Busse, Evansville, has been appointed superintendent of the New Southeastern Hospital for the Insane, Madison.——Dr. William R. Cravens, Bloomfield, is reported to be seriously ill with septicemia.——Dr. Charles L. Thomas, Logansport, who has been seriously ill in St. Luke's Hospital, Chicago, as the result of an automobile accident, has returned to his home greatly improved.——Dr. Edward F. Wagner, Fort Wayne, is reported to be ill with appendicitis.——Dr. Jewett V. Reed has been appointed superintendent of the City and Bobbs Dispensary, Indianapolis.——Dr. William G. Wegner, South Bend, has been appointed health commissioner of St. Joseph county.

MARYLAND

Pure Food Bill.—The pure food bill, which is being championed by Dr. Thomas A. Ashby, Baltimore, in the legislature, has been held back by opponents to the clause relating to ice-cream. The bill provides that 14 per cent. shall be the standard in Maryland, but permits the standard to run down to 4 per cent. on the proviso that it shall be labeled between those limits.

New Health Bureaus.—Dr. Thomas A. Ashby, Baltimore, introduced a bill in the legislature, February 24, providing for five bureaus of health under the State Board of Health, namely, communicable diseases, bacteriology, chemistry, sanitary engineering and vital statistics, each bureau to be directed by a chief at a salary of not less than $1,500 or more than $2,400, with an assistant, and if necessary with additional help. For expenses an appropriation of $24,000 is made.

The Optometry Bill.—Advocates and opponents of the optometry bill, which is designed to place optometry on the same plane as medicine, and providing for a board of examiners, appeared before the committee on hygiene of the House of Delegates February 25. Among the opponents are Drs. Samuel Theobald, Herbert Harland, Hiram Woods, Jr., Henry O. Reik, J. Frank Crouch, James J. Carroll, Ernest A. Knorr, G. Milton Linthicum and Arthur P. Herring, who state dealers in eye-glasses and spectacles were in many cases not qualified to examine eyes and prescribe glasses. Dr. Lewellys F. Barker of Johns Hopkins Hospital, in a written communication, states that serious disorders as brain tumor, locomotor ataxia, etc., first manifest themselves in eye symptoms, and might be prevented but for superficial examination of the eye by those not trained in medicine.

Care of the Insane.—The members of the State Lunacy Commission claim that the state bond issue of $600,000 for the care of the insane will be sufficient. The supervisors of the Baltimore City Charities, however, say that not less than $1,000,000 will be sufficient. The recommendations embrace $250,000 for a negro hospital with provision for 452 patients; additional $240,000 for buildings at Springfield to accommodate 674 patients; $40,000 for additional buildings at Owing's Mills to accommodate 100 feeble-minded children, and $450,000 to provide buildings each year for fifteen years to cost $30,000 each, to provide for the annual increase of at least 100 insane patients a year.——Dr. Arthur P. Herring, secretary of the State Lunacy Commission, in a recent appeal for the state care of the insane, enumerated the following points in the safeguarding of the insane: They should receive a degree of comfort and decency suitable for the average citizen; they should be treated with uniform kindness and consideration; they should be supplied with attractions and interest to lessen the monotony of hospital life; they should have medical treatment for the cure of the disease, with release from the institution at as early a date as is safe for the patient and community.

Baltimore

Chiari to be Herter Lecturer.—It is announced that Dr. Hans Chiari, professor of pathology in the University of Strassburg, is to be Herter lecturer at Johns Hopkins University in October next.

Personal.—Dr. J. Whitridge Williams was reelected president of Johns Hopkins University, February 22.——Dr. Melville H. Carter has been elected president of the Crescent Democratic Club, and Dr. Benjamin F. Phillips, vice-president.

Pure Food Violators Fined.—The Kohler Manufacturing Company, charged with misbranding 216 packages of the "Dr. Kohler's Antidote," shipped to Nashville, April 15, 1909, is said to have pleaded guilty in the United States District Court, February 19, to violation of the pure food and drugs act, and to have been fined $25. The misbranding referred to was the statement that the medicine cured headache, neuralgia and disordered stomach.

Commemoration Day.—At Commemoration Day exercises of the Johns Hopkins University, President Rempen stated that at least $1,700,000 would be necessary to move the university to the new suburban site at Homewood, and that for actual running expenses and extension departments, there should be available an additional income of $50,000 a year. Among the pressing needs of the university are a building for pathology, for which, with endowment, $500,000 is needed, and a department of preventive medicine.

MASSACHUSETTS

Personal.—Dr. James L. Wellington, said to be the second oldest graduate of Harvard Medical School, celebrated his ninety-second birthday anniversary at his home in Swansea, January 27.——Dr. James A. King, Millville, has recently returned from abroad.——Dr. Timothy Leary, Boston, has been appointed a medical examiner of Suffolk county, vice Dr. William G. MacDonald, deceased.——Dr. Emerson A. Ludden, chairman of the board of health of North Brookfield, is said to be ill with smallpox, contracted from a patient whom he treated.

Board of Health Organized.—At a meeting of the New Bedford Board of Health, February 9, organization was effected by selecting Dr. F. M. Kennedy as chairman. The following appointments were made: Medical inspector, Dr. Archibald N. Senesac; bacteriologist, Dr. Augustus H. Mandell; quarantine physician, Dr. Joseph A. Frasier; vaccinators, Drs. Anna W. Croacher and L. K. Doran; and school inspectors, Drs. Joshua F. Weeks, Joseph A. Bernier, Fred C. Graves, Charles Shanks, Edwin P. Seaver, Jr., H. V. Weaver, William A. Nield and Joseph P. St. Germain.

Hospital Notes.—The sanatorium for tuberculosis patients at Westfield, the third of the four public buildings to be built and maintained by the state, was opened February 16. It has

accommodations for 150 patients.——By the will of the late Thomas H. Dodge, Worcester, a provision is made for the establishment of a hospital to be known as the Eliza D. and Cora J. D. Dodge Hospital, to be devoted to the care of women and children only, not for incurable diseases or contagious diseases. The $30,000 devised for this purpose is to be held in trust for seventy-five years before the hospital is to be built.

MISSOURI

Measles Prevalent.—An epidemic of measles is reported in Carroll county, where several deaths are said to have occurred.

Antituberculosis Society Organized.—Buchanan Society for the Relief and Prevention of Tuberculosis was organized in St. Joseph, February 22, with a charter membership of 35. Dr. Oliver C. Gebhart was elected secretary, and Drs. Charles R. Woodson, Emmett S. Ballard, James K. Graham, Henry W. Westover, Daniel Morton and H. V. Good, directors.

Personal.—Dr. Horace D. Quigg, Buncton, has been appointed superintendent of the State Feeble-Minded Colony, Marshall. ——Dr. John A. Lowry suffered severe damage by fire to his building in Moberly, Feb. 6.——Dr. Mathew W. Pickard, Kansas City, has been appointed division surgeon of the Chicago Great Western Railroad, with jurisdiction between Kansas City and St. Joseph.——Dr. George W. Smith, Albany, has succeeded Dr. J. A. Crockett, Stanberry, as physician of Gentry county.

St. Louis

New Hospital Bills.—The physicians of the city are divided into factions for and against the hospital bills pending in the municipal assembly, which if passed will radically change the system now in force, will curtail the authority of the board of health, and will place in the hands of a hospital board, headed by the mayor and six members, laymen and physicians, the entire management of the city hospital, insane asylum, quarantine hospital, female hospital and poorhouse.

Unlicensed Practitioners Fined.—Edward Wicke, charged with practicing medicine without a license, is said to have been fined $100 and costs in the court of criminal correction, February 21.——C. O. Wright is said to have been fined $200 by Judge Kline in the court of criminal correction, February 5, on the charge of practicing medicine without a license. It was alleged by the health department officers that the defendant had agreed to cure patients in the last stages of consumption for $1,000.

Personal.—Dr. John Stewart has been appointed superintendent of the State Sanatorium for Incipient Tuberculosis, Mount Vernon, vice Dr. Oliver H. Brown, resigned.——Drs. Arthur H. Bradley and James Moores Ball have resigned from the faculty of Barnes Medical College.——Dr. Edward W. Saunders was operated on in Johns Hopkins Hospital recently for appendicitis.——In the damage suit against Dr. John M. Dean, in which malpractice was alleged, the jury has decided in favor of Dr. Dean.

Hospital for Incipient Tuberculosis.—The St. Louis Society for the Relief and Prevention of Tuberculosis has purchased ten acres near Kirkwood, on which will be established a sanatorium for incipient tuberculosis. Dr. Adrian S. Bleyer is medical director of the institution, and Drs. Nathaniel Allison, Louis H. Behrens, William Porter, Morris C. Tuholske, Francies L. Bishop, William S. Deutsch, Louis E. Bunte, Jerome E. Cook, Elsworth Smith, Oscar H. Elbrecht, William Engelbach, Warren P. Elmer, Walter Fischell, Max A. Goldstein, Rufus C. Harris, Frederick C. E. Kuhlmann, Samuel T. Lipsitz, Hanau W. Loeb, Edgar M. Senseney, Roy P. Scholz and Cleveland H. Shutt are members of the medical staff.——At a meeting of the advisory board and a committee of one hundred of the United Jewish Charities, February 21, $3,000 was realized for the sanatorium fund of the organization.

NEW YORK

Progress Against Tuberculosis.—State Heaith Commissioner Porter has approved the Pendell Farm Site for a tuberculosis hospital for Poughkeepsie. The purchase price is $10,000. The institution will accommodate 40 patients.

Gift to Adirondack Cottage Sanatorium.—One of the many congratulatory letters that Dr. Edward L. Trudeau received in connection with the celebration of the twenty-fifth anniversary of the institution was one from Mrs. E. H. Harriman containing in addition an offer of $25,000 for a research and medical fund for the support of the sanatorium laboratory. The fund is to be known as the E. H. Harriman Research and Medical Fund of the Adirondack Cottage Sanatorium. The trustees of the institution accepted the gift.

Personal.—Dr. Salphronius H. French, Amsterdam, was tendered a dinner by the Montgomery County Medical Society, February 8, in honor of his completion of fifty years of medical practice. He was also presented with a parchment scroll suitably inscribed.——Dr. Karl G. Leo-Wolf has taken charge of the new clinic and dispensary opened February 17, under the supervision of the Niagara Falls Committee on the Prevention of Tuberculosis.——Dr. Thomas H. Halsted has been elected president of the Syracuse Society for the Prevention of Social Disease, and Drs. Albert E. Larkin and Aaron B. Miller have been elected members of the executive committee.

New York City

Medical Lecture.—The date of the lecture on "Diseases of Metabolism," to be given by Prof. Magnus Levy of the University of Berlin, has been changed from March 19 to April 2.

Harvey Society Lecture.—The seventh Harvey Society lecture, given March 5, by Dr. Adolph Meyer of Johns Hopkins University, is on "The Present Status of Aphasia and Its Relation to Psychopathology."

New Free Clinic.—The East New York Dispensary on Watkins street near Pitkin avenue will be ready for occupancy by the middle of March. The building has cost about $25,000, most of which has been raised by the people of that vicinity.

Typhoid Carrier Released.—Mary Mallon, popularly know as "Typhoid Mary," has been released from quarantine on North Brother Island by order of the health department with the proviso that she is not to seek employment as a cook. She has also agreed to report frequently to the board of health. It was proved conclusively that she was a typhoid carrier.

Honor Dr. Jacobi.—On February 26 the Associated Alumni of Mount Sinai Hospital celebrated Dr. Abraham Jacobi's half century of service. Dr. Jacobi was presented with a gold medallion bearing on one side a bas-relief of himself and on the other side the words, "Humanitarian, Teacher, Leader and Friend," executed by Mobray Clark. The speakers of the evening were Drs. Martin W. Ware, William H. Welch, Baltimore, John A. Wyeth, Charles H. May and Arpad G. Gerster and others.

Personal.—Dr. Allan McLane Hamilton has returned from Europe.——Dr. Aaron B. Cohen has been appointed house physician of the Eastern District Hospital, Brooklyn.——Dr. Charles C. Haskell has resigned from the Willard Parker Hospital of the New York Department of Health, to become connected with the department of pharmacology of Messrs. Eli Lilly and Co., Indianapolis.——Dr. John C. Bryan was placed in Bellevue Hospital, psychopathic ward, January 13.——Dr. Robert H. Golder is reported to be seriously ill at his home in Rossville, Staten Island.

New Hospitals.—The new hospital and four pavilions for the isolation and treatment of communicable diseases at Hoffman's Island, are now completed and ready for occupancy. Separate pavilions are provided for measles, scarlet fever and diphtheria. The five buildings will accommodate 300 patients. ——Plans have been filed with the building superintendent of the Bronx for a new three-story hospital connected with the Hebrew Infant Asylum. The building will cost $30,000, and will be equipped with a series of isolation wards.

PENNSYLVANIA

Postgraduate Study.—The Chartiers Branch of the Allegheny County Medical Society has a class of 20 which meets every Monday evening for postgraduate study.

New Officers for Hospital.—Tarentum Hospital Association, at its annual meeting in January, elected the following officers: President, J. G. Stewart; vice-president, J. W. Hemphill; secretary, Dr. Thomas B. Allison; and treasurer, O. C. Camp. A board of directors was elected and at its first meeting, selected Dr. George M. Getze as president. The new hospital is well on toward completion and will be ready for occupancy May 1.

Personal.—Dr. Joseph L. McCool, physician at the Marcus Hook Quarantine Station, has resigned, taking effect March 1. ——Dr. Joseph M. Corson, Chatham Run, narrowly escaped drowning February 19. When driving across the river near Lock Haven, the ice broke, precipitating him into the stream. ——Dr. Harry W. Zech, York New Salem, while crossing Codorus Creek, February 17, was caught by a barbed wire and narrowly escaped drowning.

Tuberculosis Dispensaries.—A free dispensary for the treatment of tuberculosis will be erected at 4.6 Wharton street by the Jewish Consumptive Institute, fully equipped for the study of the disease and the distribution of milk and eggs to the poor. A force of nurses will be organized to visit patients

in their homes.——Owing to the impracticability of conducting a tuberculosis dispensary in a tent in cold weather, the Germantown Hospital closed its dispensary February 15. It will open again in the spring.

County Societies to Aid Tuberculosis Work.—The Committee on the Prevention of Tuberculosis of the Medical Society of the State of Pennsylvania has decided that one of the most important ways of securing advance in the crusade against tuberculosis will be to request each county medical society throughout the state to hold one or more meetings during the year on tuberculosis, with especial reference to physical diagnosis. The committee offers, if two weeks' notice is given, to arrange for a competent speaker. It is suggested that patients be on hand at the meeting for demonstration. Any requests for speakers should be addressed to Dr. Charles J. Hatfield, chairman of the committee, 2008 Walnut street, Philadelphia.

Benefit from Removal of Adenoids.—Last October the Department of Public Health issued a pamphlet directed to the parents of the younger school children concerning the nature of adenoid growths and their danger to the child. Recent investigations prove that the presence of adenoid growths are responsible for the increasing number of backward children in the lower grades, but that instant and marked improvement has followed the operation for removal. During the last school year, the medical inspectors found in the public schools 1,326 cases of adenoids and the pupil in each case was referred by letter to his parents. Of this number 482 were operated on.

Philadelphia

Jefferson College Smoker.—The members of the Academy of Jefferson Medical College, composed of men in the school having a college degree, held their annual smoker, February 18. The purpose of the association is to encourage men to attend a college before beginning their medical study. The speakers of the meeting were: Rev. Dr. George W. Lincoln, Dr. J. Chalmers DaCosta and Commodore R. J. Denny, U. S. N.

Plea for a Sane Fourth.—Another meeting of the Committee for the sane Celebration of the Fourth of July was held February 25. The committee is planning to have ordinances enacted to prohibit the sale and use of explosives. The meeting was addressed by Mrs. Imogene Oakley, of the Civic Club, Dr. William W. Keen, Mr. George W. Ochs, Dr. Samuel Wolfe, representing the State Medical Society, Dr. J. Madison Taylor, and others.

To Reduce Infant Mortality.—In pursuance of the movement to reduce infant mortality, Dr. Joseph S. Neff, Director of Health and Charities, addressed the Clerical Brotherhood, February 14. He reviewed the work of the National Association for the Study and Prevention of Infant Mortality and declared that of the 6,860 deaths in this city in 1909, fully 65 per cent. were preventable. Of the total number 4,763 were of infants under one year. He renewed his plea for a corps of women nurses for the dissemination of information to mothers regarding the treatment of infants.

Gifts to the University.—Donations amounting to more than $1,000,000 were announced by Provost C. C. Harrison of the University of Pennsylvania, at the annual "University Day" exercises in the Academy of Music, February 22. Besides the presentation by Henry Phipps of the Phipps Institute for the Study and Prevention of Tuberculosis, valued at more than $500,000, previously announced, the provost also stated that the $250,000 necessary for a zoology laboratory had been donated from various sources; that an alumnus had guaranteed the payment of $100,000 within the current year for the endowment of a chair, the occupant to be known as "The Benjamin Rush Professor of Physiologic Chemistry;" that Mrs. Caroline E. Richmond had donated $50,000 for the endowment of ten beds in the University Hospital; that the funds necessary for the completion of the new medical laboratories had been secured. This needed addition will now be built in memory of the late James McManes. This is the gift of his daughter and it is the same family who earlier presented the pathologic laboratory.——Sargent's portrait of Dr. J. William White was presented by Dr. Alfred Stengel. Dr. Charles H. Frazier received the portrait on behalf of the faculty.

SOUTH CAROLINA

Health Board Reorganized.—The board of health of Anderson has been reorganized with ten members instead of five as heretofore, and four members are physicians.

Personal.—Dr. James R. Ware has been elected president of the Greenville Board of Health.——Dr. William B. Cox, Chester, has been elected physician of the Chester County Pension Board.

Charleston Mortality.—The annual report of Dr. J. Mercier Green, health officer of Charleston, reviews the work of his department for 1909, and notes a steady reduction in the death rate. In 1899 the mortality rate was 21.60 per 1,000, while in 1909 it was reduced to 14.04 per 1,000. The colored rate for 1899 was 40.50 per 1,000, while in 1909 it had decreased to 32.03 per 1,000. He advocates the completion of the sewerage system, the filling up of all vaults and cesspools, the removal of cows and dairies from the city, and the inspection and thorough care of bakeries and dairies.

SOUTH DAKOTA

Tuberculosis Sanatorium Located.—It is probable that the state tuberculosis sanatorium, established by the state legislature, will be located on a site of 133 acres known as Chinaman's Ranch, near Custer.

Benzoate of Soda Condemned.—The Fourth District Medical Society, at its January meeting, adopted resolutions urging Congress to amend the Food and Drugs Act so as to prevent the use of benzoate of soda and other similar preservatives in foods; and endorsed Dr. Harvey W. Wiley in his vigorous campaign in food legislation.

WEST VIRGINIA

Hospital Incorporated.—Campbell Hospital has been incorporated at Beckley with a capital stock of $5,000 by Dr. J. A. Campbell and others.

Postgraduate Work.—Physicians of Clarksburg and Harrison county have organized the Harrison County Postgraduate School to improve facilities for postgraduate work.

Sanatorium for Wheeling.—At a meeting of the Wheeling Antituberculosis Society, February 11, ways and means for the erection of the proposed sanatorium were discussed, and a committee on site was appointed, with Dr. Andrew J. P. Wilson, chairman, and Drs. Harriet B. Jones and William H. McLain as medical members. Dr. Michael Gaydosh was appointed a member of the ways and means committee.

Dr. Hicks Exonerated.—The following resolution was passed by the Cabell County (W. Va.) Medical Society at its regular monthly meeting, Jan. 13, 1910:

Resolved: That the Cabell County Medical after due deliberation of the charges against Dr. Ira Clay Hicks have been thoroughly investigated, the following findings are submitted:

That we have investigated these charges and find them to be wholly untrue.

Dr. Hicks having shown his good intentions in the matter by submitting his immediate resignation to the Knights of Modern Chivalry as director, as well as aiding the censors of this society in their investigation of these charges; in justice to Dr. Hicks we demand that a copy of this resolution be printed in *The Journal of the West Virginia Medical Association* and THE JOURNAL of the American Medical Association, with the request that independent medical journals copy.

WISCONSIN

Street Cuspidors.—It is reported from Black River Falls that street cuspidors to prevent the spread of tuberculosis are to be installed in that city.

Annual Report of Sanatorium.—At the annual meeting of the Milwaukee Sanatorium for Tuberculosis Association, which maintains the institution, Blue Mounds, the report showed that 106 cases had been treated in the sanatorium during the year.

Personal.—Dr. J. Thomas Elliott, Rhinelander, is convalescent after a severe attack of erysipelas.——The case of Dr. Isaac Buckeridge, Beloit, charged with having failed to report a case of scarlet fever, was dismissed on petition of the district attorney, on account of lack of sufficient evidence to warrant prosecution.——Drs. Hugo F. Mehl, Samuel G. Higgins, P. W. O'Donovan and Dirck Bruins have been appointed assistant medical inspectors for schools of Milwaukee.

Drinking Cup Abolished.—The State Board of Health has published a rule that "The use of the common drinking cup on railroad trains, in railroad stations and in public and private schools is hereby prohibited. No person or corporation in charge of or in control of any railroad train or station or public or private school or state educational institution shall furnish any drinking cup for public use, and no person or corporation shall permit on said railroad trains or in stations or at said public or private schools, or in state educational institutions, the common use of the drinking cup."

CANADA

Will Not Amalgamate.—At the recent annual meeting of the Western General Hospital, Montreal, it was decided that the institution would not amalgamate with the Royal Victoria Hospital nor with any similar institution.

New Toronto General Hospital.—This institution is to have in its eye, ear, nose and throat department 36 beds; gynecology, 39 beds; general surgery, 145 beds; medicine, 150 beds; emergency, 9 beds, and obstetrics, 36 beds. This arrangement will provide for 124 more beds in the public wards than in the present building, and for 22 more in the private and semi-private wards. The hospital is to cost about $2,500,000, of which $1,500,000 is available.

Personal.—Dr. Ethelbert E. Meek has been appointed health officer of Regina, Sask.——Dr. Maurice McD. Seymour, Regina, has been appointed commissioner of the Saskatchewan Bureau of Public Health.——Dr. Robert G. Brett, Banff, Alberta, has gone to Vienna for graduate work.——Dr. J. L. Todd, McGill University, has been awarded a gold medal by the Liverpool School of Tropical Medicine for research work in sleeping sickness on the coast of West Africa.

Victorian Order of Nurses.—The annual meeting of the Toronto branch of this order was held February 25 in Toronto. The receipts for the year were $6,078.09 and the disbursements $5,935.05. The medical report was presented by Dr. Harley Smith. Nine nurses had made 9,399 visits in attendance on 709 patients, not including 510 infants who had received care. The number of Toronto physicians who had employed the nurses of the order increased by 40 during the year, bringing the total up to 370 who now ask for their services.

Hospital Meetings.—The ex-house surgeons of the Toronto General Hospital will hold their annual banquet and meeting in Toronto on Easter Monday. Dr. Roland Hill of St. Louis will deliver the scientific address. A gold-headed cane will be presented to Dr. Thomas Cullen, Baltimore, the ex-house surgeon, who has made the best contribution to medical literature during the last year.——The fourth annual meeting of the Canadian Hospital Association will be held in Montreal March 28 and 29. The president is Dr. H. E. Webster, superintendent of the Royal Victoria Hospital, Montreal. Dr. Christian R. Holmes, Cincinnati, and other eminent hospital workers will be present. Visits will be made to all the Montreal hospitals and demonstrations held on special features of their work.

Trying to Improve Ontario's Milk Supply.—The Ontario Milk Commission appointed by the legislature last spring has presented its report to that body. It recommends that the legislature fix the conditions under which milk is produced; that more attention be paid to cleanliness of cattle and conditions under which milk is produced, as well as the health of cattle; that no milk be sold in shops in cities over 50,000 inhabitants; proper care of handling of cans, bottles and other utensils. The milk supply of Ottawa was found to be the best in Ontario, and that of Toronto the worst, the latter city consuming 2,336 eight-gallon cans per day, coming from 900 farms within a radius of forty miles. Certified milk was the ideal, but probably could never be obtained except for sick and infant feeding. Pasteurization of milk was an expedient, but a good one. The report refers specially to the good work done in the Hospital for Sick Children, Toronto, where a modern pasteurization plant has been installed. It is being used for 1,200 in-patients and 12,000 outside patients. The government is earnestly enjoined to do something to stem the increasing tide of infant mortality by improving the milk supply.

University News.—The new buildings of the Medical Faculty of McGill University to replace those destroyed by fire three years ago are nearing completion and will be ready for occupation in the early summer. The next annual convocation will be held in the new building, at which time there will be a reunion of the medical graduates.——A university commission was appointed some time ago by the Manitoba government on the extension and management of the Manitoba University in Winnipeg. The majority of the commission advocates a state university, organized on the basis of the state universities in the United States.——That medical teaching is not satisfactory in the medical department of the University of Toronto, is the burden of the memorandum handed to the board of governors of the university by the new dean of the medical faculty, Dr. Charles K. Clarke. He states that the candidates for the final examinations during the last two years have not been properly qualified or equipped, and that better methods of teaching are necessary. A correspondent in the *Canadian Practitioner and Review* considers this is largely due to allowing experienced teachers to go and employing juniors.

LONDON LETTER

(*From Our Regular Correspondent*)

LONDON, Feb. 12, 1910.

The Lowest Birth and Death Rates on Record

The constantly diminishing birth-rate, which has been accompanied by a diminishing, but not so marked, death-rate, has been a frequent subject of comment in previous letters. The figures for 1909, which have just been published, show that once more the records have been beaten. The birth-rate was 25.6 per 1,000 of the population, a drop of 0.9 per 1,000 on the figures for 1908 and the lowest birth-rate on record. On the other hand, there is a decrease in the death-rate, due largely to improved sanitation. The rate is 14.5 per 1,000, also the lowest on record, and 0.2 lower than the rate of the previous year. During the last ten years, the death-rate has dropped 1.6. The death-rate of children under the age of one year also shows a satisfactory decline. During 1909, it was 109 per 1,000 born which is 11 below the rate for 1908. The vigorous work of municipal and philanthropic bodies in appointing health visitors and nurses who give instruction in slum districts on the rearing of the young is evidently bearing fruit. During the last 10 years the infant mortality has dropped no less than 29 per 1,000. There is also a marked decline in the death-rate from epidemic disease.

Compressed Air Experiments at the London Hospital: The Safest Method of Decompressing Caisson Workers

In the new respiration laboratory at the London Hospital, Mr. Leonard Hill, whose experiments with compressed air have done so much to elucidate the pathology of caisson disease, is conducting an important series of researches in cooperation with Mr. Greenwood on the safest method of decompressing caisson workers. The admiralty regulations for the decompressing of divers are based on experiments on goats conducted by Drs. Haldane and Boycott, but the London Hospital physiologists regard the pig as more closely resembling man physiologically and anatomically and have therefore selected this animal for experiments. They find that they can safely bring out pigs weighing up to 115 pounds which have been exposed to + 90 pounds of atmospheric pressure for two hours, a sufficient time to have saturated most of their bodies with the excess of dissolved nitrogen. Saturated at this pressure the body-water holds in solution from 6 to 7 per cent. of nitrogen, and the body fat from 39 to 49 per cent.—and the pigs were very fat. It is found that the safest method of decompression is to lower the pigs from + 90 to + 20 pounds of pressure in ten minutes, keep them at 20 pounds for two hours, and then lower them to the atmospheric pressure in another twenty minutes. A pressure of 20 pounds seems to be sufficient to keep bubbles of nitrogen from forming in the blood and during the two hours at this pressure the supersaturated blood gives off the dissolved nitrogen from the lungs.

The Danger from Illness of Locomotive Engineers

In my letter of May 30, 1908 (THE JOURNAL, June 20, 1908), I recorded the death of an engineer on the footplate of an express train a few minutes after leaving Newcastle, and in my letter of Aug. 29, 1908 (THE JOURNAL, Sept. 12, 1908) I reported the case of an engine driver who had just returned from sick leave and while driving a train was seized with paralysis. For a few minutes the fireman was so concerned for the driver's safety that the train was left uncontrolled and dashed at a high speed through a station where it was signalled to stop in order to let an express train from London pass. Fortunately the signalman realized that a disaster was imminent and switched the runaway train on to a branch line just in time to avert an accident. When the train was pulled up the driver was found lying helpless and speechless on the footplate. Recently an engineer on the Midland line died suddenly while in charge of an express train. The train left Leeds at 10 p. m. Sunday night. After pulling up at Derby the driver reeled and fell into the fireman's arms. Fortunately the train was at a standstill. Had the seizure happened during the run a disaster would probably have occurred. The postmortem examination revealed extensive though unsuspected disease of the heart.

Damages for Malpractice Obtained from Unqualified Dentists

The practice of dentistry by unqualified persons is rife in Great Britain as the law interferes with them only when they use the title "dentist," or in any way imply that they are legally qualified. Only when they are guilty of gross malpractice do they come before the courts. Two flagrant cases have just occurred. In London a woman claimed damages against the "London Hygienic Institute." She was canvassed

by a representative of this firm for a set of false teeth. She consented to have a number of extractions and the replacement of the teeth by a denture for $27. Later, the canvasser called, accompanied by another man, and between them they extracted twelve teeth and left the patient in a state of collapse. Before the operation was concluded she was in such a serious condition that one of the men sent out for brandy. For three weeks she was confined to bed and visited by a physician. Before the operation she was given to understand that the extractions would be painless. She was awarded $500 damages. On the same day that this case was adjudicated a still more flagrant one was heard in a Glasgow court. Another so-called hygienic institute (note the avoidance of any word suggestive of dentistry in order to keep outside the clutches of the law) was sued by a stationer. In extracting seventeen of his teeth in order that he might be supplied with artificial teeth the defendants broke his jaw and lacerated his mouth so that before it would be possible for him to be fitted with teeth he would have to undergo a surgical operation. He was also awarded $500 damages. Unfortunately, such cases, which are far from uncommon, do not prevent the continuance of this dental quackery. There are so many dupes that these so-called institutes can well afford to pay damages from time to time. Only when the malpractice is of a glaring description do they come within the clutches of the law.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Feb. 11, 1910.

Commission for the Study of Antityphoid Vaccination

For more than three months the Academy of Medicine has been discussing the prophylaxis of typhoid fever. At the last session the academy took up the question of the nomination of a commission for the study of the theoretical and practical conditions of preventive vaccination for typhoid fever, in accordance with a resolution offered by Professors Chantemesse and Landouzy. According to Dr. Landouzy, the condition of the country in consequence of the floods made it a duty for the academy to take a stand as soon as possible on the question of antityphoid vaccination. Dr. Netter was opposed to the nomination of a committee on the subject, believing that the facts were sufficiently numerous and well-known to enable the academy to pronounce on them; but a commission, if appointed, might advantageously be given the task of studying the means, as yet entirely unknown, by which bacillus-carriers might be relieved of their dangerous guests. Dr. Vaillard, on the contrary, believed that the Minister of War would ask nothing better than to undertake antityphoid vaccinations if he were sustained by the authority of the Academy of Medicine. Moreover, he believed that it was not for the Academy of Medicine to indicate the means for eliminating germs from bacillus-carriers, since such work could be accomplished only through the clinic and the laboratory. Finally the proposition to name a commission for the study of antityphoid vaccination was accepted. The academy appointed the following members of the commission: Drs. Chantemesse, Chauffard, Delorme, Kelsch, Landouzy, Netter, Roux, Thoinot, Vaillard, Vincent and Widal.

First Congress of French Interns

The institution of hospital internship, which constitutes one of the distinguishing features of our hospital organization, has in recent years been much attacked. The hospital interns are chosen competitively after having passed through a period of externship. The fault which is found with the competitive examinations is that they chiefly exact efforts of memory and that kind of preparation which Taine called "mechanical cramming." In place of learning to draw a clinical picture from life, from his hospital recollections, the candidate for the internship goes through a system of memory gymnastics which fill his mind with incoordinated facts and fashionable theories. But in spite of the disadvantages of the method of recruiting interns the considerable advantages of the medical instruction which the interns receive cannot be disputed. During the discussion on the reform of medical instruction Dr. Roux, director of the Pasteur Institute, who found fault with this instruction for being unpractical, declared that young physicians were ill prepared for the practice of medicine; but he admitted that the hospital interns, among whom were many excellent physicians, formed an exception, not because they had successfully passed the examination for the internship, but because, after having passed it, they had received a practical medical education for four years in the hospital service. There could not be, then, any question of suppressing the internship, but there is an urgent necessity for studying carefully its actual workings and of seeking improvements.

The Friendly Association of Interns and of Former Interns of the Civil Hospitals of Bordeaux has just taken the initiative in the matter. On the occasion of its thirtieth anniversary, which will be celebrated next May, this association has decided to invite to a family gathering representatives of other internships of the French university centers and to use the opportunity to hold the first congress of French interns, at which all questions pertaining to the hospital internships will be discussed. The questions will bear on the following three main topics: (1) the system of recruiting; (2) the organization; (3) the administration and salaries.

The Devotion of the Hospital Personnel During the Floods

M. Mesureur, Director of the Public Charities, has just addressed to the heads of the hospital establishments a circular in which he pays a tribute to the devotion of the hospital personnel in the course of the trying period through which Paris has just passed. In the hospitals directly affected by the flood, as well as in the establishments which have come to their aid, the patients have not ceased to receive the most attentive care in spite of considerable difficulties, even when almost all the services were deprived of water, light, heat and cooking facilities. An admirable effort of activity and endurance was put forth to preserve the workings of the hospital, to save the supplies, and to provide against the stopping of the technical services. The supplies were furnished day and night, and more than 2,000 beds were improvised to receive the patients driven from the Hospice of Ivry and the Boucicaut Hospital.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Feb. 10, 1910.

The Building of a "Rudolf Virchow House"

During the celebration of the eightieth birthday of Rudolf Virchow, in 1901, the Berlin Medical Society voted to erect a building to bear the name of the great pathologist who was for many years president of the society, and to serve for its scientific meetings and social affairs. As the society possesses little property it has needed several years to accumulate a fund so that the first step in carrying out this plan, the acquisition of suitable ground, could be taken. The difficulty was further increased by the fact that central real estate for new buildings is very difficult to get and very costly in the so-called medical quarter, that is, the section of the city in which the clinics and other scientific institutions are generally situated and which is best fitted for meetings of the medical profession. At the last meeting of the Berlin medical society a resolution was adopted authorizing the purchase of a piece of ground in Luisenstrasse at the price of 600,000 marks ($150,000). As the capital available for the building is only about $55,000 and the erection of the building itself will require about $100,000 in addition to the cost of the ground, a very considerable time would elapse before we would be in a position to hold the first meeting in the Rudolf Virchow House if the present methods of raising money should be continued. We hope for assistance in this matter from the German Surgical Society. This society is in possession of the Langenbeck House which has hitherto served for the meetings of the surgical society as well as a meeting-place for the Berlin medical society. As this house has become too small for the congresses of the surgical society, which at times numbers 1,800 members, the surgical society feels the necessity of building another house for its gatherings and it can be expected that both societies will combine for the new building. Perhaps some well-to-do colleagues, not only of Berlin but throughout Germany and in foreign countries, will contribute to the erection of this building, which is to be a memorial to the greatest pathologic anatomist and the teacher of the entire medical profession of the world in this generation. Here especially I make my appeal to the German physicians of America of whom a good part have themselves sat at the feet of Rudolf Virchow and received from him their pathological and clinical education. Unfortunately, we do not have here the large donors which America possesses in abundance for the establishment of great scientific and especially medical institutions, and we physicians must help ourselves in this respect. It seems to me therefore so much the more appropriate that the German physicians of the entire world should combine in erecting a building which shall serve as a home for the greatest German medical society.

Limitation of Privat-Docents

Complaint has been made for a long time that the number of privat-docents in the German universities exceeded that needed for instruction, especially in large cities like Berlin and Munich in Germany, and Vienna in Austria. The excess of privat-docents results in their crowding each other, while a considerable number are destitute of hearers and in addition they interfere with the selection of proper clinical material. Another complaint refers to the reasons why a number of privat-docents attach themselves to the faculty. It is no secret that a certain part of our colleagues join the faculties only because with this title they have a larger rôle in society and can attract patients more readily and secure a larger dowry when they marry, especially if they are so fortunate through outside influence as to be granted the title of professor after a short time. The consideration of this and similar complaints has induced the government and the faculties to limit the number of privat-docents. It is recommended to secure this end first by increasing the difficulty of securing the positions and, on the other hand, by more dismissals. Both methods have been tried, especially by the Berlin medical faculty. For admission the question of need has been raised, the personal relations have been scrutinized, and the scientific requirements somewhat increased. It has further been suggested to call only suitable investigators as privat-docents and in general not to permit any longer the voluntary candidature of privat-docents. A few weeks ago the decision was finally made to guarantee the position of privat-docent only for five years and to prolong this privilege only in case of those teachers who at the end of this time had shown the necessary capacity for research work and instruction. To this decision many are justly opposed. The objection is especially made that not only scientific considerations but also personal sympathies and antipathies and probably even sectarian prejudices, which are justly suspected in the German faculties, might have an influence on such decisions. For this reason at the last two meetings of the German university teachers a resolution along these lines, presented by the Munich psychiatrist, Professor Kraepelin, was voted down. As the minister of education has not yet sanctioned the decision of the Berlin medical faculty, it is to be hoped that the objection made to it will be considered. I say this although, in my opinion, the suggestion of this decision of the faculty came from the authorities of the department of education who have to do with this matter. As the *Deutsche medizinische Wochenschrift* has editorially pointed out with justice, two factors should determine the admission to the position of privat-docent: strict scientific requirements and the avoidance of any concessions on the part of the faculty. The latter have been largely responsible for the surplus.

The majority of privat-docents have been the assistants of the regular professors. These are rewarded to a certain extent by admission to the faculty for the numerous services which they have performed for the regular professors and in regard to the admissions to the position of docent some of the regular professors frequently make concessions to each other. They "trade off," to use a parliamentary expression: a nomination by one professor is accepted in the expectation that he will accept in a similar way a nomination by the other. If each professor gave his opinion regarding the fitness of a candidate for the position of privat-docent, without personal bias, according to his best knowledge, the objections complained of would disappear of themselves.

Limitations of Consultation Journeys

The city administration of Leipsic advertises a vacancy in the position of head physician in the St. George Hospital and imposes the condition that consultation practice shall be permitted only in Leipsic, and that even here the administration may insist on a limitation under some circumstances. This step is taken on account of the fact that many prominent chief physicians of hospitals and clinics often neglect the duties of their position on account of the demands of consultation practice. However much the consultation journeys serve the interests of the suffering public outside the large cities it must be admitted that the requirements of the authorities are just, as they express the desire that their physicians shall devote themselves primarily to the patients for whose care they have been given their position.

Smallpox in West Prussia

In consequence of the deplorable sanitary condition of Russia, she sends us from time to time infections which in this country we know only by name. That we had to deal last year with cholera cases which were the advance guard of the great St. Petersburg cholera epidemic I have told you in a previous letter. In a similar way we receive smallpox patients from time to time, partly through the business relations with Russia and partly through tramps who pass through Germany. In this way a small epidemic of smallpox has arisen in Marienburg and vicinity which so far includes about 30 cases. In one village 17 cases occurred. By compulsory vaccination of all the inhabitants of the village, altogether 1,000, it was possible to stamp out the epidemic, a result which should be well worthy of attention by all the opponents of vaccination in Germany and in foreign countries. The mortality was low.

Disinfection in Tuberculosis

The wish which I expressed in my last letter that the disinfection of dwellings which have harbored patients with lung and laryngeal tuberculosis should be done by the municipality without charge has been fulfilled sooner than might be expected. An order of the administration which has appeared in the last two days has filled the gap.

Rudolf Virchow Hospital

The affair at the Rudolf Virchow which I reported in my last letter has again been officially investigated and it has been determined that the suicide of the nurse had no immediate connection with the reprimand of the managing director. Still this unfortunate affair has had the good result that a commission has been appointed to investigate the other charges made against the hospital on this occasion.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Feb. 15, 1910.

Campaign Against Trachoma in the Austrian Army

The army of Austria-Hungary often numbers among its members individuals who come from regions infected with trachoma who, without showing manifest symptoms, are the source of troublesome outbreaks of this disease. Certain parts in the eastern and southern districts are hotbeds of the infection. Much has been done to suppress it, but the rather low degree of culture and the low standard of life of the inhabitants make it a troublesome task. The conditions of combating trachoma in the army have been recently regulated by an ordinance of the general staff surgeon. Thus each regiment has to contain at least one surgeon, who has had a special training in an eye clinic, of not less than one year's duration. For this purpose a number of scholarships for trachoma wards have been created by the ministry of war. A special (non-military) eye surgeon will be appointed in cooperation with the civil-service authorities for every ten villages in the infected regions, so that he will be able to visit every ten days each of his villages. In these trachoma places special hospitals will be erected, solely for the purpose of treatment of soldiers affected with these diseases. No man suffering from trachoma, when called on to enlist in the army, should be accepted until he be cured. Trachoma of a grave nature makes a person unfit forever for military service, according to Austrian law. A special military oculist shall inspect all trachoma hospitals and patients within certain intervals and report on his observations directly to the general staff surgeon. It must be considered that while 50 years ago nearly 6 per cent. of all recruits were suffering from trachoma, now the percentage has gone down to 0.9 per cent., and in many regiments it is extinguished entirely. In the regiments recruiting from the trachoma regions alone (about 16 regiments) the percentage is at present above 10 still. Mainly for this reason the above-mentioned rules were drawn up.

Death of Zaufal

By the death of Professor E. Zaufal, who died a few days ago at the age of 77, the Austrian Otologic Society loses one of its most prominent members. He was one of the first assistants of Politzer and has made his mark on the progress of modern otology. He was the first man to show that the acute middle-ear inflammation was the result of bacteriologic influence, especially of the diplococcus. Zaufal developed the radical operation for chronic middle-ear suppuration which originated from Küster's clinic. He was the first to point out the importance of examining the fundus oculi in ear diseases, and one of the most important steps in otosurgery; the opening and cleansing of the sinus transversus in otitic sinus thrombosis was performed by him for the first time in 1884.

Pharmacology

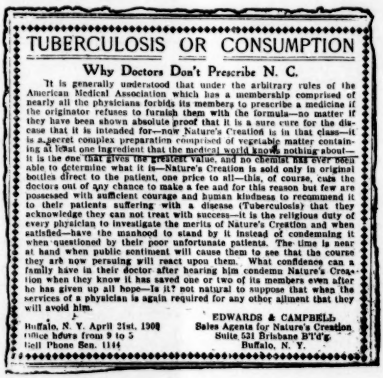
NATURE'S CREATION

A Typical Nostrum

Whatever may be said of the morality of nostrum exploitation it must be admitted that it shows no lack of business perspicacity. Should an epidemic of yellow fever sweep over the country, "patent medicines" which have previously been advertised as "cures" for a variety of conditions are immediately heralded either as specifics for, or as unfailing prophylactics against, this scourge. Should influenza be prevalent, the quack remedy that has previously been sold as a colic or rheumatism "specific" is advertised as the one and only reliable cure for *la grippe*. So, too, when the attention of the public is focussed on certain diseases, the "patent medicine" makers are the first to recognize the commercial potentialities of playing on popular interest. This is well illustrated by the innumerable "consumption cures" that have appeared during the last year or two—since, in fact, the institution of an active campaign against tuberculosis.

THEN AN "ABSOLUTE CURE" FOR SYPHILIS

An example of the way in which even the merest pretense of scientific consistency is sacrificed by nostrum mongers for the financial returns of the moment is to be found in a "patent medicine" now emanating from Columbus, Ohio, called "Nature's Creation." This nostrum was at one time exploited in Chicago as an "absolute cure" for syphilis—or "blood poison." Under the caption "Nature's Creation *vs.* Mercury and Potash" this "cure" was foisted on the public and the ignorant were told that "Nature's Creation and Antitoxin are the only *Real* specifics discovered in recent years." The syphilitic was warned against taking "mercury and potash" and was told that "it is *much* better to let the disease run with no treatment at all than to suppress it with mercury and potash." The viciousness of such doctrine is only equaled by the effrontery which becomes evident when the results of the analysis of this nostrum are considered. "Marvelous Cures" were reported, the records of which were "made under the personal supervision of one of Chicago's most prominent physicians!"



TUBERCULOSIS OR CONSUMPTION

Why Doctors Don't Prescribe N. C.

It is generally understood that under the arbitrary rules of the American Medical Association which has a membership comprised of nearly all the physicians forbids its members to prescribe a medicine if the originator refuses to furnish them with the formula—no matter if they have been shown absolute proof that it is a sure cure for the disease that it is intended for—now Nature's Creation is in that class—it is a secret complex preparation comprised of vegetable matter containing at least one ingredient that the medical world knows nothing about—It is the one that gives the greatest value, and no chemist has ever been able to determine what it is—Nature's Creation is sold only in original bottles direct to the patient, one price to all—this, of course, cuts the doctors out of any chance to make a fee and for this reason but few are possessed with sufficient courage and human kindness to recommend it to their patients suffering with a disease (Tuberculosis) that they acknowledge they can not treat with success—it is the religious duty of every physician to investigate the merits of Nature's Creation and when satisfied—have the manhood to stand by it instead of condemning it when questioned by their poor unfortunate patients. The time is near at hand when public sentiment will cause them to see that the course they are now persuing will react upon them. What confidence can a family have in their doctor after hearing him condemn Nature's Creation when they know it has saved one or two of its members even after he has given up all hope—Is it? not natural to suppose that when the services of a physician is again required for any other ailment that they will avoid him.

Buffalo, N. Y. April 21st. 1909
Office hours from 9 to 5
Bell Phone No. 1144

EDWARDS & CAMPBELL,
Sales Agents for Nature's Creation
Suite 521 Brisbane B'l'd'g,
Buffalo, N. Y.

Reproduction (much reduced) of part of a leaflet sent out by the Buffalo, N. Y. branch of the concern. The size of the original was 11½ by 9 inches.

NOW A CONSUMPTION CURE

As the public became more and more interested in the subject of tuberculosis it apparently was decided that there was more money to be made out of a tuberculous clientele than out of syphilitic patrons: exit the "blood poison" cure; enter the consumption specific.

USUAL NOSTRUM CLAIMS

The claims made for "Nature's Creation" make its classification easy: *Genus*, "nostrum;" *species*, "consumption cure;" *variety*, "mysterious unknown plant." As to what it is said to be:

> "Nature's Creation is a secret remedy . . . "
> "Is made entirely from vegetable matter . . . "
> "Contains everything beneficial and nothing harmful."
> "It is a complex vegetable compound, cannot be analyzed."
> "Comprised of vegetable matter containing at least one ingredient that the medical world knows nothing about—it is the one that gives the greatest value, and no chemist has ever been able to determine what it is."

But what it is said to *be*, pales into insignificance when compared with what it claimed to *do:*

> "Creates an appetite."
> "Strengthens the heart."
> "Reduces the temperature."
> "Developes atrophied cell tissues."
> "Stops night sweats and hemorrhages."
> "Renovates and builds up the entire system."
> "Checks at once further progress of the disease."
> "Positively strengthens and restores the leucocytes."

TESTIMONIALS

No enterprising exploiter of nostrums, whether of the "ethical proprietary" or of the "patent medicine" type, need experience any difficulty in obtaining testimonials. As has been repeatedly shown testimonials are about the least expensive part of the stock-in-trade of the nostrum vender. A free bottle or two of the preparation, an order on a local photographer for a dozen photographs, a refund of a portion of the blood-money collected by the exploiter, the not uncommon weakness of the unintelligent to desire to see their name and picture set forth in all the glory of printer's ink or even in some few cases an honest belief in the efficacy of the nostrum—all furnish easy and not costly means of obtaining favorable comment on any "patent medicine" however worthless or vicious.

That the virtues of "Nature's Creation" are extolled via the testimonial route goes without saying; that the testimonials differ in no essential particulars from those common to the "patent medicine" business, is likewise evident. We find that old familiar patient who has been "given up" by numerous physicians and who has been told that she could not live more than ten days; "Nature's Creation" is taken at the eleventh hour and death is robbed of one more victim!

To determine the value of a few of the testimonials, letters were sent to physicians living in the same town as the individuals who have written (?) so enthusiastically regarding the virtues of "Nature's Creation." Here are some of the replies that have been received:

> "In regard to 'Nature's Creation' and Miss ——'s connection with same, I would state that she did not have consumption at all . . . When —— gets a cold and coughs the least bit she thinks she has consumption, and it was during such a spell as this that she commenced to take the fake remedy. I have treated the family and I know positively that anything else would have worked similarly."

The Miss —— here referred to was advertised as one of those people "whose recoveries have been most wonderful." The physician who wrote the above also had this to say of an individual whose case is *not* advertised:

> "There was Mrs. —— here who really had tuberculosis and came into my hands after spending a great deal of money trying the nostrum and drifting into the last stage. She rapidly got worse all the time she took it and died a short time after I first saw her."

Another physician who was written to concerning another "wonderful recovery" said:

> "As regards —— and 'Nature's Creation' . . . she is not my patient. . . . I only attended one patient who took the wonderful remedy and she praised it up for several weeks and at the end of that time passed from the sphere of 'Nature's Creation' into the presence of the Creator."

Another quoting a fellow practitioner who had last treated one of the marvelous "cures:"

> "Dr. A. says . . . that ——— is no better than he was before taking the nostrum and, in Dr. A.'s opinon, ——— had no tuberculosis, anyhow!"

Of one patient whose testimonial was given much publicity two years ago, a Colorado physician writes:

> "She has been benefited by the change to this climate but *she is not cured* and the benefit she has is attributable to Colorado sunshine. Further, she refused to allow this nostrum to use her name in their literature."

SOME PECULIAR COINCIDENCES

One letter of inquiry was written direct from THE JOURNAL office to an individual living near Columbus, Ohio, whose portrait appeared among other testimonial givers. The reply in itself was amusing, breathing injured innocence and restrained indignation; but some coincidences of a mechanical nature made it even more amusing.

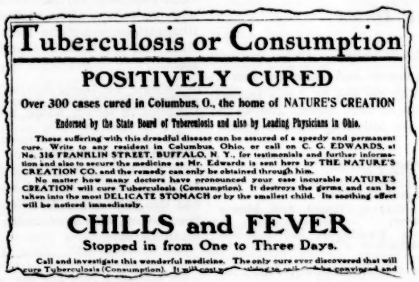
Coincidence 1: The letter was typewritten on a plain sheet of paper that bore a certain watermark; the same watermark is found in the Nature's Creation Co.'s stationery!

Coincidence 2: The machine on which the letter was typewritten had two characters out of alignment; the same two characters show the same lack of alignment in a communication sent out by Nature's Creation Company on its official stationery!

Coincidence 3: The degree of indentation of the first line of each paragraph was unusual; the same peculiarity is to be found in a letter emanating from the office of the nostrum company!

Coincidence 4: The "reply" was dated five days later than the letter of inquiry; this is about the time that would be consumed if the testimonial-giver sent THE JOURNAL's letter to Columbus and awaited a reply!

Under the circumstances, it is difficult to avoid the suspicion that the "reply" to THE JOURNAL's letter originated in the office of "Nature's Creation" and was merely signed and mailed by the individual who gave the testimonial.



Tuberculosis or Consumption

POSITIVELY CURED

Over 300 cases cured in Columbus, O., the home of NATURE'S CREATION

Endorsed by the State Board of Tuberculosis and also by Leading Physicians in Ohio.

These suffering with this dreadful disease can be assured of a speedy and permanent cure. Write to any resident in Columbus, Ohio, or call on C. G. EDWARDS, at No. 316 FRANKLIN STREET, BUFFALO, N. Y., for testimonials and further information and also to secure the medicine as Mr. Edwards is sent here by THE NATURE'S CREATION CO. and the remedy can only be obtained through him.

No matter how many doctors have pronounced your case incurable NATURE'S CREATION will cure Tuberculosis (Consumption). It destroys the germs and can be taken into the most DELICATE STOMACH or by the smallest child. Its soothing effect will be noticed immediately.

CHILLS and FEVER

Stopped in from One to Three Days.

Call and investigate this wonderful medicine. The only cure ever discovered that will cure Tuberculosis (Consumption). It will cost you ... convinced and

A typical newspaper advertisement of "Nature's Creation." The most extensive advertising seems to have been done in the cities of Columbus, Ohio, and Buffalo, N. Y. Small advertisements have appeared in the classified advertising sections of the New York papers.

WHAT OUR CHEMISTS FOUND

Laboratory Report: An original, sealed bottle of "Nature's Creation" was obtained direct from the Nature's Creation Company, Columbus, Ohio, and was submitted to the Association laboratory for chemical examination. The bottle was labeled back and front and was wrapped in a circular containing directions for using the preparation. On the front label was pictured in colors a rocky landscape and waterfall over which the words "The Nature's Creation Co.'s Discovery" were printed in red. A facsimile signature, "Mrs. J. M. Reynolds (originator)" was printed across the lower part of the label, which also bore the serial number "16050 B." and declared the presence of 6 per cent. alcohol. The label on the other side of the bottle contained directions for using the preparation. "Nature's Creation" is a dark, brown liquid having a sassafras-like odor and a salty, licorice-like taste. Qualitative tests show the presence of iodid, potassium, sodium, vegetable extractive—including some preparation of licorice—and small quantities of sulphates, phosphates, calcium and iron. Appropriate tests indicate the absence of potent alkaloids, salicylates, benzoates, cinnamates, and phenols such as creosote and guaiacol. Quantitative estimations of potassium and iodid indicated that these constituents are present in the form of potassium iodid, equal approximately to 6.00 grams in 100 c.c. of the preparation. Estimation of sulphate and phosphate indicated that these radicles are probably present in combination with small quantities of sodium, calcium and the potassium not present as iodid. These salts are present in quantities too small to have any therapeutic effects.

The examination indicates that "Nature's Creation" is essentially a solution of potassium iodid in a weakly alcoholic medium containing vegetable extractives and flavoring matter and small quantities of inorganic salts.

From the analysis given it seems, therefore, that the main medicinal ingredient of this "complex vegetable compound" which "cannot be analyzed" is potassium iodid. These findings are not surprising when what has been said about the earlier exploitation of "Nature's Creation" as a remedy for syphilis —a substitute for the "potash" treatment!—is borne in mind.

REVERSING THE USUAL ORDER

Many nostrums now on the market were originally exploited to the medical profession as "ethical proprietaries" and after receiving the necessary quota of testimonials from unthinking physicians were boldly launched as "patent medicines," pure and simple. The "consumption cure" of J. Q. Lloyd of St. Louis variously known as "Lloyd's Specific," "Re-Stor-All" and "Aicsol," is a case in point. "Nature's Creation" apparently is reversing the usual order. Originally sold direct to the laity, first for syphilis and now for tuberculosis, exploited by means of newspaper advertisements that are probably without a parallel in their vilification of the medical profession, the promoters of this nostrum have the consummate impudence to attempt to foist their "vegetable" mixture of dilute alcohol and potassium iodid on physicians. The Buffalo, N. Y., headquarters of "Nature's Creation" are known as the "Therapeutic Co., inc.," with a Dr. W. H. Baker as its "consulting physician and a director of its affairs." Dr. Baker circularizes the medical profession in the interest of "Nature's Creation" which he claims "is equally as effective and specific in tubercular trouble as Anti-Toxine is with Dyptheria." (Spelling and composition as in original). The "literature" sent out to physicians by the "Therapeutic Co., inc." differs but little from that sent to the laity. The medical profession is given a few enlightening, fundamental facts regarding the composition of the blood—though these facts are known to every school-boy who has reached the seventh grade. There is, however, one important omission in the advertising that goes to physicians, but which appears in that sent to the laity. Here it is:

> "Nature's Creation is a secret remedy and as it is a complex vegetable compound cannot be analyzed. This is why the medical profession has not the same medicine."

With this exception there is practically no difference between the "lay" and "professional" advertising. The "consulting physician" encloses with his own letter to the medical men a facsimile letter from Dr. Arthur W. K. Downes, a homeopathic physician of Chicago, who states that "you need have no hesitancy in using this medicine in any and all cases of consumption. . . ." In answer to a letter addressed to the "consulting physician," asking for the formula of "Nature's Creation" the secretary of the company wrote:

> "It will be impossible for us to forward to you the formula of the remedy, known as 'Nature's Creation,' as we do not possess the same."

CONCLUSION

This nostrum is so typical of its class, its method of exploitation so characteristic of the innumerable "cures" that flood the market that in closing we can do no better than quote Mr. Adams in the "Great American Fraud:"

"Our national quality of commercial shrewdness fails us when we go into the open market to purchase relief from suffering. The average American when he sets out to buy a horse, or a box of cigars, is a model of caution. Show him testimonials from any number of prominent citizens and he would simply scoff. . . . Now observe the same citizen seeking to buy the most precious of all possessions, sound health. Anybody's word is good enough for him here. An admiral whose puerile vanity has betrayed him into a testimonial; an obliging and conscienceless senator; a grateful idiot from some remote hamlet; a renegade doctor or a silly woman who gets a bonus of a dozen photographs for her letter—any of these are sufficient to lure the hopeful patient to the purchase. He wouldn't buy a second-hand bicycle on the affidavit of any of them, but he will give up his dollar and take his chance of poison on a mere newspaper statement which he doesn't even investigate."

And of the value of printer's ink as an asset to the exploiter of "patent medicine:"

"Take from the nostrum venders the means by which they influence the millions, and there will pass to the limbo of pricked bubbles a fraud whose flagrancy and impudence are of minor import compared to the cold-hearted greed with which it grinds out its profits from the sufferings of duped and eternally hopeful ignorance."

Association News

THE ST. LOUIS SESSION

Announcement of Hotel Headquarters and Meeting-Places

Arrangements are well under way for the St. Louis session of the American Medical Association next June. The Committee on Arrangements makes the following announcements of meeting-places and hotels:

GENERAL MEETING PLACES

PRESIDENT'S RECEPTION	First Regiment Armory, Grant and Manchester Avenues.
GENERAL SESSION	Odeon Theatre, Grand and Finney Avenues.
REGISTRATION, SCIENTIFIC AND COMMERCIAL EXHIBITS, POSTOFFICE	Coliseum, Washington and Jefferson Avenues.
HOUSE OF DELEGATES	St. Louis Medical Society, 3523 Pine Street.

SECTIONS	MEETING PLACES
PRACTICE OF MEDICINE	Third Baptist Church, Grand and Washington Avenues.
SURGERY	Odeon Theatre, Grand and Finney Avenues.
OBSTETRICS	Y. M. C. A. Bldg. Association Hall, Grand and Franklin Avenues.
OPHTHALMOLOGY	Aschenbroedel Hall, 3535 Pine Street.
LARYNGOLOGY AND OTOLOGY	Sodality Hall, Grand Ave., between Pine Street and Laclede Avenue.
DISEASES OF CHILDREN	Grand Avenue Presbyterian Church, Sunday School, Grand Avenue, near Washington Avenue.
PHARMACOLOGY	Delmar Avenue Congregational Church, Delmar, West of Grand Avenue.
STOMATOLOGY	Y. M. C. A., Small Hall, Grand and Franklin Avenues.
NERVOUS AND MENTAL DISEASES	St. Louis University Library, Grand Avenue, head of E. Pine Street.
DERMATOLOGY	Odeon, Recital Hall, Grand and Finney Avenues.
PREVENTIVE MEDICINE	Knights of Columbus Bldg., 3549 Olive Street.
PATHOLOGY AND PHYSIOLOGY	Y. M. C. A., Lecture Hall, Grand and Franklin Avenues.
GENERAL HEADQUARTERS	Southern Hotel

HOTEL HEADQUARTERS

SECTIONS	HOTELS
SURGERY	Jefferson
DERMATOLOGY	Jefferson
LARYNGOLOGY AND OTOLOGY	Jefferson
PRACTICE OF MEDICINE	Planters
PATHOLOGY AND PHYSIOLOGY	Planters
PHARMACOLOGY	Planters
OPHTHALMOLOGY	Marquette
OBSTETRICS	Marquette
DISEASES OF CHILDREN	Marquette
NERVOUS AND MENTAL DISEASES	Buckingham
PREVENTIVE MEDICINE	Buckingham
STOMATOLOGY	West End

Book Notices

THE MORPHIA HABIT AND ITS VOLUNTARY RENUNCIATION. (A Personal Relation of a Suppression After Twenty-five Addictions.) With Notes and Additional Cases. By Oscar Jennings, M.D. (Paris), Fellow of the Royal Society of Medicine. Cloth. Pp. 492. Price, $2 net. New York: William Wood & Co., 1909.

This book is a sort of supplement to the author's former book on the cure of the morphin habit. The author here restates his plan of gradual reduction and substitution at a certain point of solutions by rectal injection, together with the use of alkalies in the form of Vichy or the bicarbonates, and spartein as a heart tonic. Self-renunciation is an important feature of the plan, and in this the patient must be tactfully supported. Nothing, he says, can be worse than restraint or compulsory suppression. Other methods of treatment are critically discussed, and the author relates his personal experience of a suppression after twenty-five years of addiction.

CLINICAL MANUAL FOR THE STUDY OF DISEASES OF THE THROAT. By James Walker Downie, M.B., F.F.P.S.G., Lecturer on Diseases of the Throat and Nose, University of Glasgow. Second Edition. Cloth. Pp. 415, with 104 illustrations. Price, $3.25. New York: The Macmillan Co., 1909.

This second edition has been remodeled and practically rewritten. It gives a brief description of the various diseases of the throat, of methods of examining the mouth and throat, and of methods of treatment, including the newer ones, such as *x*-ray and radium therapy. The book concludes with an enumeration of formulas used in laryngology. The illustrations, especially the colored plates, are good and plentiful, and the book is a practical one for the general practitioner.

TECHNIC OF HYDROTHERAPY AND SWEDISH MASSAGE Employed at The Loma Linda Sanitarium, Loma Linda, Cal. Edition 2. Compiled by George Knapp Abbott, M.D. Paper. Pp. 40. Price, 25 cents.

This is a very convenient little manual, describing the method of applying most of the hydropathic methods. While some are best carried out in a special institution, the majority of the methods described are applicable in ordinary practice and the book ought therefore to be of service to the general practitioner who must instruct his patients or nurses in such manipulations.

Queries and Minor Notes

PELLAGRA—A CORRECTION

Dr. A. G. Fort, Lumpkin, Ga., calls attention to the fact that in THE JOURNAL, Feb. 12, 1910, page 560, in lines three and six, second paragraph, the word pellagra should be uncinariasis. This mistake was due to error in transcribing the report of the meeting, but as there is no resemblance between the two diseases we trust that our readers understood the article.

BOLUS ALBA

To the Editor:—In THE JOURNAL, Jan. 8, 1910, p. 170, mention is made in an abstract of "bolus alba." I have been unable to find the substance, drug or compound in any books at my disposal. What is it, or where must I look to get the desired information?

J. R. SCOTT, Waterloo, Iowa.

ANSWER.—**Bolus alba** is a nearly pure white clay, similar to **kaolin or fuller's earth**. It is official in most of the European pharmacopeias. It was formerly much employed in medicine but fell into almost complete disuse. There now appears to be a tendency to revive it. Without doubt kaolin, U. S. P., would answer as a substitute.

NEW METHODS OF SPUTUM RESEARCH

To the Editor:—In THE JOURNAL, Oct. 9, 1909, p. 1241, appears an abstract of an article from the *Medizinische Klinik*, August 29, by Dr. P. Uhlenhuth on "New Methods of Sputum Research," giving a method of cleaning sputum for the examination of tubercle bacilli which seems very advantageous in laboratory work. However, in this article the formula is not plainly given. Please give this formula in such a manner that it can be made up by any retail druggist.

I. P. LEVI, Anniston, Ala.

ANSWER.—The substance used by Uhlenhuth is a proprietary preparation, the exact formula of which is unknown to us. The essential components are given in the abstract referred to and a similar preparation can be made by any one by mixing liquor sodæ

chlorinatæ with liquor sodii hydroxidi. As the product is used greatly diluted the following mixture of official preparations ought to be equally efficient.

Liquoris sodæ chlorinatæ	1|4
Liquoris sodii hydroxidi	1|
M.	

One part of this mixture with 4 parts of water is very nearly equivalent to a 5 per cent. solution of the proprietary preparation if the statements made regarding it are correct.

BORROWING PERIODICALS FROM SURGEON-GENERAL'S LIBRARY

To the Editor:—Is it possible to borrow journals from the library of the Surgeon-General in Washington? M. H. S.

ANSWER.—On receiving this letter we wrote Dr. W. D. McCaw, the librarian, who states in reply that while the Surgeon General's Library is essentially a library of reference and not a lending library, books are sometimes loaned to physicians. It is preferred to make these loans to institutions, or societies, whose librarian is authorized by the directors or trustees to make such requests, thereby becoming responsible for the safe return of the books. Physicians can make a deposit of money sufficient to replace the book desired, and this deposit can remain in the library permaneatly, subject to other loans, or it can be returned immediately on the return of the book in question. The library does not lend unbound journals, old and rare editions of books, volumes of plates, atlases, text-books, or any publication that cannot be readily replaced. Packages are sent and returned by express only, and at the cost of the borrower. Two weeks is the limit of time for loans, although when necessary the time may be extended.

SOMNIFUGOUS DRUGS WANTED

To the Editor:—Will you kindly give me a list of the most efficient somnifugous drugs. I have a patient who complains of extreme lethargy. I have tried various suggestive methods, diet, alteratives and the like, with little or no effect. There is no visible cause for the condition. E. OLIVER, M.D., Ancram, N. Y.

ANSWER.—Drugs are not classified as somnifugous in works on pharmacology and therapeutics. Neither can one find any reference to the milder forms of stupor or hebetude in the works on practice of medicine. It is evidently a subject to which writers have paid little attention. One reason for this is that the symptom is usually connected with others which are more prominent and the removal of the underlying condition usually suffices for a cure.

A thorough diagnosis should first be made. The condition may be the first stage of a stupor depending on organic disease of the brain. The reflexes should be tested and the eyes examined for evidence of a possible brain tumor or other cerebral lesion. In case brain disease is found treatment should be directed to the fundamental condition, as little can be expected from the use of drugs directed to a single symptom. In some cases the condition of somnolence may depend on disturbance of the digestive organs by which blood accumulates in the splanchnic area and a relative anemia of the brain results, assuming, as has been generally held, that there is anemia of the brain during sleep. For such a condition a regulation of diet according to the findings after a test meal and appropriate medication for the digestive condition would be first in order. This symptom may depend on other conditions which will require a thorough investigation by all the means of clinical diagnosis, including the microscope.

The Public Service

Medical Corps of the Navy

Changes for the week ended Feb. 26, 1910:

Boyd, J. C., medical director, detached from duty as president of the Naval Examining Board and Naval Medical Examining Board, Washington, D. C., and ordered to continue other duties.

Pleadwell, F. L., surgeon, detached from duty as assistant to the Bureau of Medicine and Surgery, Navy Department, and ordered to continue other duties.

Braisted, W. C., surgeon, detached from special duty in the Bureau of Medicine and Surgery, Navy Department, and ordered to duty as assistant to that Bureau.

Barber, G. H., surgeon, detached from the Naval Hospital, Boston, Mass., and ordered to command the Naval Hospital, Olangapo, P. I.

Brownell, C. D. W., surgeon, order of February 17, revoked.

Harmon, G. E. H., medical director, transferred to the retired list from March 5, 1910.

Grunwell, A. G., surgeon, retired, ordered home when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

Nielson, J. L., P. A. surgeon, detached from the *Buffalo*, and ordered to the Bureau of Medicine and Surgery, Navy Department.

Shippen, L. P., asst.-surgeon, detached from duty with the Marine detachment, Camp Elliott, Canal Zone, and ordered to the *Buffalo*.

Grunwell, A. G., surgeon, transferred to the retired list from Feb. 18, 1910.

Wieber, F. W. F., surgeon, ordered to Washington, D. C., for examination for promotion and then to wait orders in that city.

Public Health and Marine-Hospital Service

Changes for the week ended Feb. 23, 1910:

Kerr, J. W., asst. surgeon-general, directed to proceed to New York City, on special temporary duty.

Gassaway, J. M., surgeon, directed to proceed to Talmage, Stockton and Napa, Cal., on special temporary duty.

Carter, H. R., surgeon, leave for 1 month from Feb. 5, 1910, on account of sickness, amended to read 1 day, Feb. 5, 1910.

Nydegger, J. A., surgeon, leave for 3 days from Feb. 17, 1910, revoked.

Mathewson, H. S., P. A. surgeon, directed to proceed to East Las Vegas, N. Mex., on special temporary duty.

Clark, Taliaferro, P. A. surgeon, granted 2 days' leave of absence, Feb. 10 and 12, 1910, on account of sickness.

Lavinder, C. H., P. A. surgeon, granted 7 days' leave of absence from Feb. 14, 1910, under Paragraph 191, Service Regulations.

Lloyd, Bolivar J., P. A. surgeon, directed to proceed to Washington, D. C., and report to the Director, Hygienic Laboratory for temporary duty.

McKeon, F. H., P. A. surgeon, granted 7 days' leave of absence from Nov. 20, 1909, under Paragraph 191, Service Regulations.

Lanza, A. J., asst.-surgeon, relieved from duty on the Revenue Cutter *Rush*, and directed to proceed to San Francisco, for duty.

Hotchkiss, S. C., asst.-surgeon, granted 1 day's leave of absence, Jan. 1, 1910, under Paragraph 191, Service Regulations.

Dynan, N. J., acting asst.-surgeon, granted 1 day's extension of leave, Feb. 10, 1910, on account of sickness.

McLarty, A. A., acting asst.-surgeon, granted 10 days' leave of absence from Feb. 18, 1910.

Rodman, John C., acting asst.-surgeon, granted 5 days' leave of absence from Feb. 23, 1910.

Storrs, H. R., acting asst.-surgeon, granted 5 days' leave of absence from Feb. 26, 1910.

Wollenberg, R. A. C., asst.-surgeon, resignation accepted by the President, effective Feb. 15, 1910.

Board of medical officers convened to meet at the Bureau, Feb. 21, 1910, for the purpose of revising the U. S. Quarantine Regulations. Detail for the board: Assistant Surgeon-General L. E. Cofer, chairman; Surgeon H. R. Carter; Passed Assistant Surgeon R. H. von Ezdorf, recorder.

Marriages

OTTO J. FRUTH, M.D., to Miss Helen Gempp, both of St. Louis, February 12.

ANTONIO D'AMICO, M.D., Newark, N. J., to Miss Annina Violetto, of Messina, Sicily, recently.

SAMUEL EDWARD IZARD, M.D., to Miss May Estelle Drummond, both of Newhebron, Miss., February 20.

JOHN D. MCKINNON, M.D., to Miss Jennie G. Newcomb, both of Calumet, Mich., at Grand Rapids, February 17.

BENJAMIN L. FRANKLIN, M.D., Millbrook, Mich., to Miss Bertha Shepard, of Lake Odessa, Mich., at Grand Rapids, February 8.

Deaths

Elbert Warren Clark, M.D. Rush Medical College, 1871; a member of the American Medical Association and Iowa State Association of Railway Surgeons; president of the Iowa State Medical Society in 1896; local surgeon at Grinnell for the Chicago, Rock Island and Pacific and Iowa Central railways; a member of the local board of pension examiners; president of the Rush Medical College Alumni Association of Iowa in 1904 and 1905; five times a member of the city council of Grinnell; mayor from 1893 to 1897; president of the city school board for six years, and trustee of Iowa College since 1898; a member of the twenty-third general assembly from Powesheik county; and state senator in 1906; first vice-president of the Merchants' National Bank; died at his home in Grinnell, February 16, from the effects of a fall received a year and a half before, aged 67.

Charles Fourgeaud McGahan, M.D. Dartmouth Medical School, Hanover, N. H., 1886; a member of the American Medical Association; American Climatological Association; American Laryngological, Rhinological and Otological Association; and Mississippi Valley Medical Association; professor of anatomy in the U. S. Grant University, Chattanooga, from 1889 to 1892; a director of the National Association for the Study and Prevention of Tuberculosis; medical director of the Aiken, S. C., Cottage Sanatorium; died at his home in Aiken, February 15, from pneumonia, aged 48.

William Winslow Eaton, M.D. New York University, New York City, 1864; a member and formerly president of the Massachusetts Medical Society; formerly vice-president of the American Electro-Therapeutic Association, and president of the Essex South District Medical Society; surgeon of the Sixteenth Maine Volunteer Infantry during the Civil War; president of the Board of Health of Danvers; a member of the local pension examining board; died at his home in Danvers, January 31, from cerebral hemorrhage, aged 73.

Horace R. Littlefield, M.D. Rush Medical College, 1870; assistant surgeon of volunteers during the Civil War; surgeon-in-chief of the construction departments of the Oregon Railway and Navigation Company, Northern Pacific Railroad, Washington and Idaho Railway, and Portland and Puget Sound Railroad; died at his home in Portland, Ore., February 17, from the effects of injuries received in a railway accident more than six years before, aged 64.

Walter Steadman, M.D. New York University, 1894; of West Hoboken, N. J.; formerly a member of the American Medical Association, a member of the American Society of Railroad Surgeons; surgeon to St. Mary's Hospital, Hoboken; and local surgeon for the Delaware, Lackawanna and Western Railroad; died in Christ Hospital, Jersey City Heights, February 13, after an operation for abscess following typhoid fever, aged 36.

William Henry Walling, M.D. Medico-Chirurgical College of Philadelphia, 1889; for several years a member of the faculty of his alma mater; a member of the Medical Society of the State of New Jersey; a veteran of the Civil War; formerly editor of the Philadelphia *Medical Times and Register;* died at his home in Atlantic City, N. J., February 17, from cerebral hemorrhage, aged 73.

Ezekiel W. Hinton, M.D. Rush Medical College; a member of the Kansas Medical Society, and president of the Kingman County Medical Society since its organization; a pioneer resident of Kingman county, and formerly superintendent of the State Hospital for the Insane, Osawatomie; died at his home in Kingman, January 15, from cerebral hemorrhage, aged 74.

Alfred C. Godfrey, M.D. Rush Medical College, 1890; of Galena, Ill.; a member of the American Medical Association; formerly a member of the faculty of the John A. Creighton Medical College, Omaha; and surgeon of the medical staff of the Presbyterian Hospital in that city; died at the home of his father in Galena, February 18, from tuberculosis, aged 41.

John Edwin James, M.D. University of Pennsylvania, 1866; Hahnemann Medical College, Philadelphia, 1886; professor of gynecology in Hahnemann Medical College; senior gynecologist to Hahnemann Hospital and consulting surgeon to the Childrens Hospital; died in Hahnemann Hospital, Philadelphia, February 16, from cerebral hemorrhage, aged 69.

Don Lee Shaw, M.D. Rush Medical College, Chicago, 1891; formerly a member of the American Medical Association; a member of the Illinois State Medical Society; professor of surgery and director of the anatomical laboratory in the Chicago College of Medicine and Surgery; died in Kankakee, February 21, from general paresis, aged 43.

Lorenzo D. Jared, assistant surgeon of the Twenty-first Illinois Volunteer Infantry during the Civil War; for many years a practitioner of Whiteside county, Ill., and afterward a teacher and botanist of California; died in the Soldiers' Home Hospital, Los Angeles, Cal., Aug. 3, 1909, from valvular heart disease, aged 78.

Dennis Frank Keefe, M.D. College of Physicians and Surgeons, Boston, 1909; attending dental and oral surgeon to Rhode Island and St. Joseph Hospital, Providence; a member of the Rhode Island Board of Registration in Dentistry; died at his home in Providence, February 1, from cerebral hemorrhage, aged 43.

James J. Norwine, M.D. Missouri Medical College, St. Louis, 1880; one of the first councilors of the Butler County (Mo.) Medical Society; local surgeon at Poplar Bluff for the St. Louis, Iron Mountain and Southern Railroad; died at his home, Nov. 22, 1909, from nephritis, aged 51.

Edgar Ivory Hanscom, M.D. Medical School of Maine, Brunswick, 1903; a member of the Rhode Island Medical Society; assistant physician at the State Hospital for the Insane, Cranston, Howard, R. I.; died in that institution, February 19, from septicemia, aged 38.

John B. Allen, M.D. Medical College of Ohio, Cincinnati, 1881; a member of the Indiana State Medical Association; formerly president of the Wayne County Medical Society; health officer of Cambridge City, Ind.; died at his home February 18, from tuberculosis, aged 65.

Josiah Henry Gunning, M.D. New York University, New York City, 1861; assistant surgeon in the United States Navy during the Civil War; formerly professor of anatomy in his alma mater; died at his home in Oakland, Cal., January 4, from heart disease, aged 68.

LaFayette Garrett, M.D. Texas Medical College, Galveston, 1876; a practitioner of Texas for more than fifty years; formerly president of the board of trustees of the Galveston Board of Education; died at his home, Dec. 2, 1909, from senile debility, aged 84.

Thomas Albert Proctor, M.D. University of Pennsylvania, 1852; surgeon of the Forty-first Virginia Infantry, and later of the Third Georgia Infantry, C. S. A.; died at his home near Drake's Branch, Va., February 9, aged 80.

Paul Hellison, M.D. Norway; formerly surgeon in the Norwegian service; for more than 26 years a practitioner of Deer Park, Wis.; died at his home in that place in August, 1909, from senile debility, aged 72.

Michael J. Murphy, M.D. State University of Iowa, Iowa City, 1885; of Cumberland, Iowa; a member of the American Medical Association; died in Fort Worth, Texas, January 15, from acute melancholia, aged 53.

William Hugh Moore, M.D. University of Nashville and Vanderbilt University, 1890; of Viola; a member of the Tennessee State Medical Association; died in Pensacola, Fla., February 11, from nephritis.

Augustus Henry Dieck, M.D. University of Goettingen, Germany, 1842; for 70 years a practitioner of the sixteenth ward of New York City; died at his home, February 16, from senile debility, aged 91.

Isaac N. Mathers, M.D. Manitoba University, Winnipeg, 1907; a member of the Vancouver (B. C.) Medical Society; died in the Vancouver General Hospital, Nov. 9, 1909, from typhoid fever, aged 40.

Hendricks L. Cartwright, M.D. University of Louisville, 1878; a member of the Kentucky State Medical Association; died at his home in Burkesville, February 18, from cerebral hemorrhage, aged 61.

Newton H. Traver, M.D. New York Homeopathic Medical College, 1861; of Lewiston, Mich.; died in the Harper Hospital, Detroit, February 2, from shock following a surgical operation, aged 72.

Esther B. Holmes, M.D. Homeopathic Medical College for Women, Cleveland, 1871; for 30 years a practitioner of Colorado Springs; died at her home in that city, Aug. 26, 1909, aged 66.

Flavius Josephus Gregory, M.D. Jefferson Medical College, 1859; assistant surgeon in the Confederate Service during the Civil War; died at his home in Keyesville, Va., February 13, aged 74.

William King, M.D. Medical School of Maine, Brunswick, 1887; of Brunswick; died in the Augusta State Hospital, February 15, from mental disease of long standing, aged 52.

John Gray, M.D. Yale University, New Haven, 1868; for sixty-five years a practitioner of Connecticut; died at the home of his son in Bridgeport, February 17, aged 89.

William T. Smith, M.D. Memphis Hospital Medical College, 1901; formerly of Caddo, Okla.; died at his home in Durant, Okla., Dec. 31, 1909, from pneumonia, aged 34.

Karl A. Grempler, M.D. Germany; for more than forty years a dentist of Baltimore; died at his home, Sept. 11, 1909, from cerebral hemorrhage, aged 75.

John George (license, Miss.); of Pine Bluff, Miss.; a surgeon during the Mexican War; died in Jonesboro, Tenn., Sept. 28, 1909, from heart disease, aged 86.

Philip W. Boyd, M.D. University of Maryland, 1868; a Confederate veteran; died at his home in Winchester, Va., February 13, from nephritis, aged 63.

G. W. Wasson, M.D. Medical College of Georgia, Augusta, 1856; a Confederate veteran; died at his home in Fairview, S. C., February 4, aged 89.

Benjamin Silas Vawter, M.D. Pennsylvania Medical College, Gettysburg, 1854; died at his home in Washington, D. C., January 5, aged 78.

Henry J. Waite, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; died at his home in Minneapolis, February 11, aged 80.

George Hayden Stevens, M.D. Detroit Homeopathic College, 1906; died at his home in Detroit, February 13, from tuberculosis, aged 32.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Legislative Notes

MARYLAND

A pure food bill (No. 57) has been introduced into the Maryland legislature. This bill was framed by a joint conference of the committee of the state society, the governor's commission and the drug exchange committee. A similar bill last year was defeated, mainly on account of the difference of opinion as to who should have charge of its enforcement. At present, all are agreed that the State Board of Health is the proper authority. Practically the only opposition comes from the ice-cream interests, some of the smaller Baltimore dealers wishing to continue to sell ice-cream containing less than 8 per cent. butter fat. The bill defines drugs as all medicines and preparations recognized in the United States Pharmacopeia or National Formulary and any substance or mixture for the cure, mitigation or prevention of disease of either man or animal. Food is defined to include all articles used for food, drink, confectionery or condiment by man or animals. The usual provisions are made regarding standard of strength, quality and purity as well as adulteration, coloring, bleaching, etc. The provisions regarding labeling, misbranding and adulteration are similar to those of the national Food and Drugs Act. The State Board of Health is authorized to appoint a state food and drug commissioner at a salary of $2,500, to administer the law. All examinations and analyses are to be made in the laboratories of the board. The bill is an excellent one and should become a law.

Bill 213 is to provide for the registration and licensing of midwives. This bill is also endorsed by the state society.

Bill 33 is to amend the present lunacy laws of the state and is the result of the work of the present lunacy commission.

Bill 167, an antivaccination bill, has been reported on adversely by the committee.

Bill 221 is to provide for records of cold storage detention of meats, butter, eggs and other perishable provisions and provides that all food stuffs shall bear a tag showing the date of admission to the cold storage warehouse and the date on which they are taken out.

A bill on expert testimony (No. 188) has been introduced by the legal profession of Baltimore. It provides that any judge of any court of record may appoint one or more disinterested skilled persons to serve as expert witnesses, who shall examine into the matters committed to them and report their findings in writing to the court and that such reports shall be filed with the papers in the case, not as evidence but as a basis for the examination of the expert witnesses by the court or by the counsel of either party, but such experts shall not be deemed the witnesses of either party but shall be called by the court. The calling of such witnesses by the court does not limit the right of the parties to call other expert witnesses as usual.

Bill 150 is the usual optometry bill to provide a short cut for untrained and unqualified persons to enter the practice of medicine, at least to a limited extent, and is thoroughly pernicious.

MASSACHUSETTS

The following bills have been introduced in the state legislature:

H. B. 1130 makes it the duty of every physician, medical student or midwife in attendance at the birth of a child to instill into the eyes of the child immediately after birth a suitable prophylactic for ophthalmia neonatorum.

Bill 615 is to provide for the medical inspection of working children.

H. B. 830 is to provide for appeals from the decisions of local boards of health to the superior court of the county.

H. B. 974 is to restrict the use of common drinking cups and to prevent contagious diseases.

H. B. 977 is to authorize cities and towns to establish homes or hospitals for consumptives.

H. B. 979 is to forbid the storage of any food product in a warehouse or cold storage for more than six months.

H. B. 826 is to amend the Massachusetts food and drugs act so as to make it uniform with the national law.

NEW YORK

A bill has been introduced into the legislature providing for the licensing and inspection of abattoirs and markets where meat is sold, under the direction of the State Commissioner of Agriculture. The tendency of western stock raisers to ship diseased meat into this state is responsible for this measure.

A bill has been introduced proposing two amendments to the code of civil procedure and the insanity law which aims to meet the situation involved in such repeated attempts to secure freedom as have been made in the case of Harry K. Thaw and others. These amendments provide that writs of habeas corpus and certiorari shall not be issued in behalf of a person who has been committed to, or detained in, a state hospital for insane criminals by virtue of the judicial determination of his insanity by a competent tribunal of civil or criminal jurisdiction and has been granted one writ, except under conditions prescribed by Section 93A of the insanity law. This is a new section of the insanity law and limits the rights of a person confined in a state hospital to a second writ of habeas corpus or certiorari. It requires a certificate under oath of two physicians that they have examined the person under custody and believe him to have recovered his sanity. The authorities of the hospital may present facts in opposition and the granting of the writ is within the discretion of the court.

NEW JERSEY

The Committee on Medical Legislation and a special committee of the Medical Society of New Jersey have drafted and secured the introduction of a medical practice bill endorsed by the state society. This bill is to provide for the appointment by the governor, with the consent of the senate, of a board of medical examiners consisting of five "old school" physicians, three homeopathic physicians, one eclectic and one osteopathic physician, the bill providing that the board shall remain the same as at present constituted, with the addition of an osteopath. The usual provisions regarding organization, etc., follow. Each applicant must present a certificate from the state superintendent of public instruction showing that before entering medical college he attended four years at an approved public or private high school or had the equivalent of such instruction. Applicants for a license to practice medicine must also produce diplomas from a medical college in good standing with the board, showing that the applicant has studied medicine for four full school years of nine months each. Applicants who graduated prior to July 4, 1903, and who have been in continuous practice for five years since, may be admitted on evidence of three courses of medical lectures while applicants who graduated prior to July 4, 1894, may be admitted on evidence of two years of lectures. Osteopaths must produce evidence of graduation from some legally incorporated osteopathic college in the United States in good standing with the board and must have studied osteopathy for not less than three years of nine months each. After July 4, 1912, applicants for an osteopathic license must produce evidence of four years work of nine months each. Each applicant is to be examined in the materia medica and therapeutics of his school of medicine and the following subjects: anatomy, physiology, hygiene, chemistry, surgery, obstetrics, gynecology, pathology, bacteriology, diagnostics and histology. The board may refuse or may revoke a license for the following reasons, inebriety, criminal abortion, conviction of a crime involving moral turpitude, public advertising of special ability to treat or to cure chronic and incurable diseases, presentation of a diploma, license or certificate illegally obtained or issued under fraudulent or unlawful misrepresentation. Licenses by the board are to be filed with the clerk of the county in which the licentiate resides. Government medical officers, hospital interns, legally qualified

dentists, manufacturers or dealers in lenses, artificial eyes, limbs, etc., those engaged in the mechanical examination of the eyes for adjusting spectacles, physicians of other states called in consultation and physicians residing on the boundary line of the state are exempt. The administration of family remedies, chiropody or any religious practices are also exempt. Osteopaths now practicing are required to register within sixty days of the passage of the act. Osteopaths licensed by registration and without examination are not authorized to use any drugs or medicines, serum, antitoxin, vaccine, practice surgery, attend any infectious or contagious disease or sign any death certificate. The definition of the practice of medicine is changed considerably from that of the existing law and provides that any person holding himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition or who offers or undertakes to do so is practicing medicine and surgery. The definition in the existing law turns on the use of the words "doctor," "professor," etc., and of the letters "M.D.," rather than on the actual fact of treatment.

Bill No. 37 is the usual optometry bill and should be defeated.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Seventh Month—Third Weekly Meeting

PROPAGANDA AGAINST TUBERCULOSIS

OBJECT: The prevention of tuberculosis. (a) Prevention of spread of infection by early diagnosis; treatment of curable cases and care of advanced cases. (b) Raising resisting power of individuals by higher standard of living, proper hygiene, etc.

AGENCIES: 1. *Official:* (a) National, work of National Bureau of Health. (b) State, establishment of sanatoriums, educational campaigns, legislation. (c) Local, dispensaries, educational campaigns, legislation, etc.

2. *Private:* (a) Organizations for prevention; (b) institutions for treatment.

METHODS: 1. *Research Work:* A study of social aspects of tuberculosis. Relation of tuberculosis to overcrowding, infected tenements, unhealthful occupations, factories and schools, public places, city and country life. Effect of food supply, alcoholism, hygienic surroundings, race, social standing, occupations. Aid of health officers and visiting nurses in carrying out this work. Study of bovine tuberculosis and method of regulation.

2. *Education:* Publication of leaflets and pamphlets. Maxims on street-car transfers. Circulars of advice distributed through labor unions, factories, department stores, churches, etc.; printed in different languages. Popular lectures; use of stereopticon to illustrate. Tuberculosis exhibits, local and traveling. Details of exhibit: I. Where Tuberculosis Breeds: Illustrate with models and photographs of tenements, bedrooms, airshafts, etc.; photographs of back yards, cellars, rubbish and garbage accumulations. II. How Tuberculosis Spreads: The bacillus, dust, street-sweeper, duster, spittoon, poorly ventilated factories, sweatshops and lodging-houses. The house-fly, food supply. III. How Tuberculosis Is Cured: Advantages of outdoor treatment. Photographs of sanatoria, dispensaries, summer camps, etc. IV. How Tuberculosis is Prevented: "Don't Spit." Model tenements, proper ventilations, etc. Use of posters and phonographs in exhibits. Press services. Supplying local newspapers with information regarding prevention and treatment of tuberculosis. Educational campaign through labor unions, etc. Campaign against "Consumption Cures." Schools. Instruction in hygiene in public schools. "Public Health Week." Instruction in spread, prevention and treatment of tuberculosis.

Miscellany

Prevention and Correction of Deformities in Paralyzed Children.—H. Winnett Orr, Lincoln, Neb., states that under normal conditions all parts of the body are beautifully balanced—this is shown especially in the extremities where one set of muscles is kept in balance by a set of opponents. Any paralysis may lead to deformity by giving the unparalyzed muscles an advantage so that they contract without opposition and produce distortion of the part of the body in that vicinity. This is called contracture deformity and such deformity is always preventable if proper support is provided to protect against overcontracture of the strong muscles. Of course, by "proper support" we may mean rather complicated splints or apparatus but such treatment can always be made to do good in such cases. Immediately after poliomyelitis, for example, complete rest is of the utmost importance. When any function can be resumed the affected parts of the body must be protected against distortion by suitable apparatus. If contracture deformity occurs under these circumstances some one is to blame. Massage, electricity, baths, etc., are only of value when used in connection with such apparatus. Plaster of Paris will make suitable splints in the majority of cases. After deformity has occurred correction may be made by forcible "bloodless" correction, by tendon division combined with manipulation or by the transplantation of the tendons of strong muscles into the distal ends of weak muscle tendons. The time for the performance of any of these procedures must be carefully determined after a careful estimation of the patient's condition. After any such procedure the putting up of the corrected part in a retention apparatus (preferably plaster of Paris) must be done without tension. Finally, physicians must learn the possibilities of prognosis in these cases so that the patients will not fall into the hands of irregular practitioners and institutions. They can be protected against deformity and it should always be done.—Abstract of paper read before Elkhorn Valley Med. Soc.

Are Hygienic Measures Eugenic?—Irving Fisher, of the National Conservation Commission (*Hygiene and Physical Education*, December), says the question has been raised whether reduction in infant and child mortality will not weaken rather than strengthen the race by interfering with natural selection and favoring the survival of the unfit. It is pointed out that mortality at later stages of life has not decreased as has that in the earlier stages. This may be explained by the fact that improvement in hygienic living has not as yet affected adults as much as children. Parents are quick to apply new methods for preventing disease in their children, such as sterilizing milk, but do not take the same precautions for themselves, and modern conditions may produce in some respects more unhygienic habits among adults than prevailed under simpler conditions of a generation ago. It must be borne in mind also that the same childrens' diseases and other causes which tend to kill the unfit child also tend to hinder the proper development of the fit. The lessening of children's diseases will have the effect not only of prolonging weak lives, but also of developing and prolonging the strong. Where infant mortality is high, mortality at all ages is high. Fitness is relative to environment. A lessening of physical strength cannot be called degeneration if conditions under civilization do not require the same physical strength as our barbarian ancestors needed. It is adaptation to existing conditions which measures fitness. With high health ideals will come a demand which will prevent the perpetuation of the unfit and through the mere force of public opinion lead in general to healthier marriages.

Teaching Sexual Hygiene to Boys.—Dr. Marshall H. Bailey, of Harvard University (*Hygiene and Physical Education*), asks whether it is better to allow the boys to get a mixture of truth and error in regard to sexual matters from their associates in school or on the street, or the truth from a more reliable source. Opposition to instruction in the laws of life is general. After corresponding with twenty-eight prominent medical institutions he found instruction in the hygiene of sex is given in nineteen and not given in six. In German universities a circular containing solemn warnings is given

out, but Dr. Bailey believes more good could be accomplished by giving instruction before entering university life, and besides that the great bulk of the young do not go to college. He therefore believes a circular of information compiled by a committee endorsed by the signatures of a considerable number of representative men and women should be sent to parents with a letter asking them to read it and then decide whether or not it should be presented to the boy either by themselves or the family physician.

Treatment of Tuberculosis at Loomis Sanatorium.—The Thirteenth Annual Report (1909) of the Loomis Sanatorium for the treatment of tuberculosis shows that of 205 patients discharged during the year, there were 15.61 per cent. of "apparent cures," as against 21.52 per cent. during 1908, due to the fact that the average stay of the patients in 1909 was 30 weeks, as against 43.17 weeks in 1908. Thus there seems to be established a definite relation between the duration of residence and the results of the treatment. Thirty-five out of 205 patients discharged during the year "apparently cured," were given tuberculin treatment, in addition to the regular hygienic and dietetic measures of the sanatorium. The results showed a considerable advantage in favor of the tuberculin, but the patients were selected and their residence in the sanatorium was longer. Still it seems to be proved in this institution, as well as in others, that this specific treatment, combined with the ordinary measures, has a percentage of advantage. In patients whose symptoms did not positively contraindicate it, controlled autoinoculation by exercise was practiced under rigid supervision. This was effected by manual labor in the way of timber thinning, landscape gardening, etc. Improvements have been made in the dietetic system of the sanatorium which enables the staff to control the diet of the patient with scientific precision. An investigation was begun of the present condition of all patients discharged since the opening of the institution, but the work was not sufficiently advanced to publish the results in this report. The value of such an investigation will be great.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of State of, Mobile, April 19-22.
Am. Laryn., Rhin. and Otol. Society, Washington, D. C., April 28-30.
Arizona, Medical Association of, Phoenix, April 20-21.
California, Medical Society of State of, Sacramento, April 19-21.
Conf. State and Prov. Bds. of Health, Washington, April 28-29.
District of Columbia, Medical Association of, Washington, April 26.
Florida, Medical Association of, Jacksonville, April 6-8.
Georgia, Medical Association of, Athens, April 20-23.
Maryland, Med. and Chirurgical Faculty of, Baltimore, April 26-28.
Missouri Valley, Medical Society of, Omaha, March 17-18.
Mississippi State Medical Association, Oxford, April 12.
South Carolina Medical Association, Laurens, April 19-21.
Tennessee State Medical Association, Memphis, April 12-14.

CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION AND OF THE COMMITTEE ON MEDICAL LEGISLATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 28-March 2, 1910

Heretofore the annual conferences on medical education and medical legislation have been held at different times and places. Since the work of the two conferences was so closely related, however, and since many delegates were being asked to attend both, it was determined this year to hold the conferences of these two committees of the American Medical Association at the same time and place. This joint conference met at the Congress Hotel at 10:00 a. m. and was called to order by Dr. Arthur Dean Bevan, Chicago, Chairman of the Council on Medical Education.

Address of Chairman

DR. ARTHUR DEAN BEVAN, Chicago: We are called together for the purpose of improving the medical educational standards and we feel that we can discuss this whole subject freely and fully even though some of the facts brought out criticize some states and some medical institutions. Many of us here know the difference between the modern intelligent medical care and the ignorant charlatan care of the sick. 1. We have seen the woman dying of child-bed fever which might have been prevented by the intelligent aseptic conduct of her confinement. 2. We have seen the child dead from unrecognized and untreated diphtheria, when the death might have been prevented by early laboratory or intelligent clinical diagnosis and the proper use of antitoxins. 3. We have seen the pinched and dusky face of the man dying of peritonitis, which could have been prevented by early diagnosis and proper operative treatment.

We who are medical men know the great difference between intelligent and ignorant, between trained and untrained medical care. But the public does not know; it does not understand. The public does not as yet realize the importance of public health measures and of measures aimed at securing properly trained medical practitioners.

From a study of the subject of medical education during the last eight years, I desire to present to you briefly some conclusions:

1. Medical education and medical educational standards are not in a satisfactory condition in this country. Great improvements have been made in the last ten years and, although the situation is encouraging, conditions as a whole are not only unsatisfactory, but not even acceptable.

2. When we met six years ago at the first conference on education there were over 160 medical schools in this country. There are now about 140 medical schools. The number should be further reduced to 60 or 70.

3. It costs more to conduct a modern medical school than the amount which can be obtained from students' fees. The 60 or 70 schools which should survive must receive either state aid or private endowment.

4. The medical school of the future must be developed as the medical department of a university.

5. The study of modern medicine demands: (1) a certain preliminary education; as a minimum this should be eight years in the primary school; (2) four years in the high school; (3) at least one year in special preparation in the premedical sciences of chemistry, physics and biology; (4) four years in the medical school, two years in the laboratories of anatomy and physiology, pathology and pharmacology; two years in clinical work in medicine, surgery, obstetrics and the specialties; and finally (5) at least one year of practical work as an intern in a hospital. And the time has about arrived when provision should be made for including this hospital year in the medical course.

6. The state licensing boards of the various states should have the legal power to insist on a proper preliminary education and a proper medical course, and they should have the right to refuse recognition to work done in colleges not offering proper medical instruction and the examination for medical licensure should be of such a practical character and so thorough as to determine the ability of the applicant to practice medicine. This power is necessary in order to protect the people of the state against ignorance and quackery. No public health measure is of greater importance than that aimed at securing properly qualified medical practitioners.

7. In order to secure proper medical standards throughout the country we must have the united support of the state boards, the medical profession, the medical schools, the universities and, what is most important of all, public opinion.

8. In order to obtain this support we must carry on a campaign of education showing what the existing conditions are and what changes are needed in order to secure conditions which will best safeguard public health, secure proper medical attention for the sick and aid in the advancement of medical knowledge.

With the knowledge which is now available of the conditions of the medical schools in this country, *i. e.*, that only about half of them are teaching medicine in an acceptable way, and with the power possessed by the majority of the state boards

to determine what constitutes a medical school in good standing, it would seem easily possible for the state boards acting either independently or conjointly to compel these unsatisfactory schools to come up to an acceptable standard or else to go out of existence. The teaching of modern medicine is too serious a function. The turning out of ignorant and poorly qualified physicians is too great a menace to the community to permit this sort of thing to go on. This review of the medical schools shows that of the 140 medical schools in this country only about half are acceptable. Turning from this very depressing picture to an analysis of the better schools we find much reason for encouragement.

The Council believes that the coming American standard will be: a four-year high school education; a year or two in the university laboratories in chemistry, physics and biology; four years in the medical school and a clinical year as an intern in a hospital.

Secretary's Report: Inspection of Medical Colleges

DR. N. P. COLWELL, Chicago: All the work done by the Council on Medical Education since it was created in 1904 has been focused on the investigation of medical colleges preparatory to issuing a classification of medical schools. In making the investigation, the chief aim has been to point out reasonable standards of medical education and to assist the colleges in any way it could in the fight many of them have been making to keep pace with the advances, which through modern methods of research have been made in knowledge of the causation and treatment of disease.

Following the first tour of inspection, the Council was criticised in certain quarters for not publishing outright its classification of medical colleges. That classification was not published, however, because the Council desired to give a number of colleges which were contemplating improvements the opportunity to make good. The delay has been more than justified. Many colleges have made extensive improvements, numerous mergers have been brought about and, on the whole, the situation has been greatly improved. The general conditions as revealed by the first inspection, however, were given the widest possible publicity, so that at the present time any plea of ignorance of the demands of modern medicine is unworthy of consideration. In the second tour of inspection, complete data regarding each college has been obtained and the whole field carefully reviewed, so that now further delay in the presentation of a classified list would not be justified and would unnecessarily prolong the existence of low standards.

Reference has just been made to the amazing variety of institutions professing to teach medicine in whole or in part which are annually turning out thousands of graduates who seek the privilege of practicing medicine. While some of these graduates may be thoroughly competent, there are doubtless many who are illiterate, untrained and decidedly incompetent. While they may differ greatly in their theories of disease and their methods of treatment, those who by whatever means secure the right to practice will be alike in this respect: they will all be required to differentiate between the normal and the abnormal; they must determine the nature of diseases, injuries and deformities and in many of their cases what they do or fail to do will mean the life or the death of the patient.

The only legal barrier which can protect the public from ignorant, untrained and incompetent practitioners is the state medical licensing board. It is of extreme importance, therefore, that in each state there should be a single licensing board, that its members should be selected because of their special fitness for the work involved and that this board should be given full authority in the premises. Instead of that we now have in our 49 states and territories 82 different boards of medical examiners including the sectarian boards. In some states the responsibility for defending the public against ignorance, incompetence and fraud, is divided among as many as 4 separate boards.

The point to be borne in mind is that an osteopath is required to make a diagnosis just as a medical practitioner is, and, therefore, needs a similar training in the fundamental medical branches. Lower educational standards for osteopaths, therefore, are a serious menace to the public and an unfair discrimination against medical practitioners. Regarding osteopathic colleges also it should be stated that owing (a) to their lower preliminary requirements, (b) to their shorter course for the osteopathic degree, (c) the few instructors in their faculties who have had a scientific medical training and, more important still, (d) to the serious if not absolute lack of laboratory equipment and clinical facilities not one of the osteopathic colleges in the United States can be compared even with those medical colleges which have been rated as not acceptable by the Council on Medical Education.

State licensing boards are fighting the people's battle against ignorance and incompetence, sometimes without the support either of the public or of the medical profession, and they are often seriously handicapped. That some states have not already been overrun with incompetents is due entirely to the examining boards which have found methods by which the unfit could be excluded even with the limited authority allowed them by ther legislatures. The time has come, however, when the medical profession and the people of each state should see to it that a single board of competent medical examiners shall control the licensing of all practitioners of medicine and that this board be given full authority. This one barrier between the sick and afflicted and the crowds of ill-trained and incompetent practitioners must be made effective.

Other Reports and Addresses

The rest of the morning was taken up with reports of special committees which will be covered in the continuation of this report in THE JOURNAL next week.

At the Monday afternoon session the following addresses, which will be published in THE JOURNAL, were given:

"Standards in Medical Education as Related to Standards in General Education," Hon. Elmer Ellsworth Brown, United States Commissioner of Education, Washington, D. C.

"The Obligations of the University to Medical Education," President Henry S. Pritchett of the Carnegie Foundation for the Advancement of Teaching, New York City.

"The Relation of the University to the Medical School," President J. G. Schurman of Cornell University, Ithaca, N. Y.

"Some of the Functions of a University Medical School," Dr. Victor C. Vaughan, Dean, University of Michigan College of Medicine and Surgery, Ann Arbor.

These addresses will be printed in the near future in THE JOURNAL.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Fourth Annual Meeting, held at Albany, Jan. 25-26, 1910

(Concluded from page 738)

Osteitis Deformans (Paget's Disease); Report of Two Cases

DR. HENRY L. ELSNER, Syracuse, spoke of the various conditions included under osteitis deformans, hyperostoses, leontiasis and kindred conditions as purposeless enlargements of the bone, and went extensively into the history of the subject, tracing its development from the days of Malpighi to the present time. He believes it safe to adhere to Paget's original characterization of the disease, the symptomatology of which has not been changed, although we have learned much concerning its pathology during recent years. He described two cases. One patient is a woman of 62, in whom the leading symptoms are asymmetrical hyperostoses affecting the right half of the cranial vault, the left clavicle, the right ilium, and the left femur, with secondary changes in the spinal column, arteriosclerosis, aortic (valvular) obstruction and mitral insufficiency. The case is classical and answers in every particular the requirements included in the original definition of the disease. The second case is probably the youngest of Paget's disease on record. The patient is 17 years of age; the bone growth dates back five years. In both of the cases reported there was a history of traumatism. In the first case, the patient, when 6 years old, was thrown from a carriage, striking on the right parietal bone, the point at which, when she had reached her fifty-fifth year, the disease commenced. In the

second case, there is a history of fracture of the femur. The leading features of the second case are the marked changes in the rami of the lower jaw, the decided thickening of the left parietal bone, the enormous enlargement of the sternal end of the right clavicle, the surprisingly large right ilium, the enlargement of the right humerus and forearm, the increase in the length of the arms and the increase of the size of the right foot, with the characteristic decalcification and abnormal bone growth pathognomonic of Paget's disease. In the second case, *x*-ray exposures confirmed the diagnosis. The first patient refused to be *x*-rayed or photographed.

Dr. Elsner discussed the rarity of this pathologic entity and gave data to prove this, there being less than 100 cases on record. He went extensively into the study of the bones involved, and considered the possibility of making a diagnosis with the involvement of one bone only, and proved that asymmetrical cases may become symmetrical, and that after a long period of hyperostosis cranii distant bones may hypertrophy and show the characteristic changes of Paget's disease. He also considered the relative frequency of malignant growth following these changes.

Paget's disease may be either painful or painless.

The history of traumatism in both of the cases reported is an interesting feature. In Case 1 the prime changes were found in the bone, which was injured when the patient was 6 years of age. In Case 2, the enlargements of the bones are distant from the seat of fractures sustained five years before other bone changes began. In the absence of positive knowledge with regard to the etiology of the condition, Dr. Elsner said that he had wondered whether, when Nature was called on to provide new bone or repair injured bone, the habit of bone formation may not have been stimulated and finally formed; and whether in these cases with a positive history of traumatism that factor ought not to be considered provocative. There is a growing feeling, he said, among those who have observed these cases that the majority of the patients suffer from some vascular change. Arteriosclerosis has been a frequent accompaniment. Valvular lesions were present in many of the reported cases. Paget's first patient suffered from mitral disease. In Case 1 the patient has arteriosclerosis and aortic valvular obstruction, with marked mitral insufficiency. In Case 2 the patient has an unstable circulation and muffled heart sounds, but no evidence of arteriosclerosis. Dr. Elsner directed attention to the close facial resemblance of patients suffering from this disease. Just as all acromegalic and myxedematous patients grow to look alike as these diseases advance, so do these patients with skull changes grow to resemble each other. He also discussed the eye changes and took up the differential diagnosis and the value of *x*-ray pictures. He gave a summary of the pathologic findings as reported by various writers and concluded that widespread resorption and enormous hyperplasia produce the changes in osteitis deformans; that decalcified bone is formed in the majority of these, but that there are exceptions to this rule, and that occasionally there is a calcified deposit; that, so far as we know, no treatment has had the slightest influence in controlling the disease; that we must depend on Nature's compensatory provision by which the denser bone is finally deposited; that the disease is not specific; that the Wassermann reaction has been absent in all cases in which it has been tried by Kutsche since its introduction into medicine.

DISCUSSION

DR. WISNER R. TOWNSEND, New York: I wish to mention a case I have had under observation and which is one of 4 cases I have seen. This patient is a young woman, aged 38, whom I saw for the first time early this summer. She stated that for years previous to this time she had weakness in her left hip. There was no pain, but stiffness was marked whenever she exercised a great deal. One and a half years ago the patient ran to catch a train and on rising after a few minutes' rest she found that she was very lame and the joint suffered greatly. This condition increased with motion. There was great pain on either motion or pressure. She has been using crutches ever since. She was admitted to the hospital April 29, 1909, carrying crutches. There was slight edema of both legs below the knee, and there was slight grating of both shoulders, the left being more marked. The wrists were the same. The fingers were slightly, if at all, involved. The temporomaxillary joints apparently were not involved. Both femora were rotated outward and the upper end of the left one was very prominent. The femur and tibia of the left side were larger than those of the right. There were no head symptoms. There was no headache. There was no enlargement of the head or of the facial bones. There was no enlargement of the bones of the upper extremity and this was tested not only by personal observation, but with *x*-ray pictures which show nothing abnormal so far as can be seen.

The blood count showed: reds, 4,560,000; white count, 9,000; hemoglobin, 90 per cent.; polynucleears, 67 per cent.; lymphocytes, 26.5 per cent.; eosinophils, 2.0 per cent.; transitionals, 2.5 per cent; mast cells, 2.0 per cent.

The patient is a very frail woman. She weighed from 105 to 110 pounds, was not large, and apparently was not in any sense diminished in height, but there was a bending at the femoral neck, or what is called coxa vara and she had a very large area there of rarifying osteitis. The tibia was markedly changed and thickened, and had all the characteristic symptoms of Paget's disease. This woman has been kept under observation and at present there is no sign whatever of any increase in the head measurements, or head symptoms, and apparently there is no increase in any other symptoms. In other words, the condition seems to be limited practically to the left lower extremity, although there is a slight change in some of the bones of the right lower extremity. I believe the condition is wholly progressive and well illustrates the type of disease in which the head is not involved. Whether the head will become involved eventually or not, I do not know. Dr. Elsner stated that in his cases the head involvement came early. In this case the woman had noticed the symptoms I have mentioned for years. The condition is not so rare as some of us believe, because I have seen 4 cases. This is a small number when we consider the number of patients I have an opportunity of seeing at the Hospital for Ruptured and Crippled during the course of a year. Nevertheless it is an interesting disease.

DR. CLARENCE COON, Syracuse, gave lantern slide demonstrations of *x*-ray pictures of osteitis deformans and of stomach and intestinal diseases.

Pellagra

DR. C. H. LAVINDER, Washington, D. C., gave a general talk on this subject. He gave an interesting account of the early history of the disease and what Italian and other physicians had accomplished by their investigations and treatment of it. He mentioned its prevalence in this country at the present time and the efforts being made to combat it.

Test Meals and Feces Examination: New Methods and Their Clinical Value

DR. ANTHONY BASSLER, New York: In nearly all cases of early gastric carcinoma and in latent ulcer, no value comes from the bacterial tests with test meals. Abnormal bacterial conditions of the colon are oftener matters of assumption rather than of accurate clinical diagnosis, for not all of the bacterial conditions of the gut show indol in the urine. The dietetic and neurotic conditions of the stomach do not give more than the merest bubble, but in ulcer and cancer I found that this was higher. In the normal individual the feces and water tests show a low gas result on the strict meat diet; the ordinary mixed diet shows a higher result, while that of the strict carbohydrate diet is the highest of all. When in the nutritive media the gas result is higher than normal, the patient is placed on a strict meat diet and the watery suspension test is performed, at which, should the gas result be higher than a meat diet should give, the diagnosis of the indolic form of chronic interstitial putrefaction is suggested. On the other hand, should the gas result in the nutritive media be lower than normal, the patient should be placed on a strict carbohydrate diet to see if the gas from the watery suspension of feces still remains below what was ordinarily seen in the individual on such a diet at which, when the result is positive, the diagnosis of the more common saccharobutyric form is suggested.

Medicolegal

The Drug, Sufficient Administering and Evidence of Pregnancy in Abortion Case

The Supreme Court of Iowa says that the defendant in the case of State vs. Stafford (123 N. W. R. 167) was charged with having administered a certain noxious substance to a woman named, she being pregnant, with intent to cause a miscarriage. The evidence left no doubt but that at her request he procured cotton root and wintergreen for her, brought her a substance that he represented to her was what she desired, and advised her how to take it.

Whether the drug furnished, when taken, would produce a miscarriage, was not material, save as bearing on the motive with which the defendant acted. The name of the substance need not be alleged in the indictment. Nor was it necessary that it be proved to have been noxious, though so alleged. Undoubtedly the word "noxious" was used in such indictments at the common law; but it is not in the Iowa statute defining the crime. That makes the intent the chief element in the offense. Hence the word "noxious" in the indictment, as it was merely descriptive of the substance, like that of a weapon or wound in charges of murder, might be treated as surplusage. So that all essential to be proven was that the defendant wilfully administered "any drug or substance whatever." That he procured and delivered to the woman such drug or other substance for the unlawful purpose was sufficient proof that he "administered" it.

Proof of pregnancy was essential under the Iowa statute defining the crime. Decisions holding otherwise construe statutes materially different from that of Iowa. But it was not necessary that the woman be proven quick with child, as at common law. Difficulties in the proof of condition prior to that time are to be encountered, but absolute certainty is not exacted even in a criminal action. All that is necessary is that the evidence be such as to support the conclusion that the woman was enceinte beyond a reasonable doubt.

In this case the woman and the defendant had been indulging in sexual intercourse for more than a year. She had missed her menses on December 25 or 26, and in January became convinced that she was in a family way, and so informed the defendant. With that understanding the drug was procured and taken, resulting in her serious illness January 20, when she was removed to her home, and during the first week in February discharged from her vagina a substance which she testified resembled a blood clot. She was in health, save that she had a cold in December, and the circumstance of missing her menstrual flow twice in succession was not otherwise explained. The court is of opinion that the evidence was sufficient to carry the issue as to whether she was pregnant to the jury, even though two physicians expressed the opinion that at so early a period it could not be known with certainty without a microscopic examination or the discovery of the ovum whether she was enceinte. As said, absolute certainty is never exacted; all the law requires is such reasonable certainty as shall silence all reasonable doubt.

As the woman was not an accomplice, corroboration of her testimony was not essential.

A judgment of conviction is affirmed.

Circumstances Under Which a City Should Not Be Enjoined from Using a Public Park Building for Pest-House

The Supreme Court of Kansas says, in City of Manhattan vs. Hessin (105 Pac. R., 44), that this was an action brought by the latter party to enjoin the city from using one of its buildings as a pest-house. In the city is located the State Agricultural College, which is attended by about 2,000 students, who room and board in club and boarding-houses throughout the city. In the early spring of 1909 smallpox appeared among the students in some of these club and boarding-houses. The contagion spread so rapidly that the board of health was unable to control it with any quarantine regulations or by any plans of isolation which could be adopted. An epidemic seemed imminent. In this extremity the board sought for houses throughout the city which could be temporarily used for pest-house purposes, but none could be obtained. However, in a public park owned by the city there was a stone building which had been erected for a floral hall, which was used for that purpose while the fair was in operation, but was not at the time in question occupied for any purpose. It could be used fairly well for the purposes of a temporary pest-house, and was adopted by the city for that use. Twelve patients were placed therein, and guards properly stationed to prevent the further spread of the disease, which was in that stage of development when it was most contagious. The plaintiff resided in property adjoining the park, about 500 feet from this building, when, fearing contagion, he obtained from the judge of the district court a temporary order of injunction prohibiting the removal of any other patierts to such building, and requiring those already there to be removed within ten days. The city appealed to the Supreme Court, insisting that its officers were charged at the time this action was commenced with the duty of providing means to prevent an epidemic of smallpox, and that the performance of such duty involved the exercise of official discretion which could not be judicially controlled by injunction. The Supreme Court takes the city's view, and holds that the issuance of the injunction under the circumstances shown was error.

The city officers were compelled to perform these duties promptly. It was impossible for want of time to select a site and erect a suitable building. The situation presented an emergency which the officers were compelled to manage without delay, and in such a manner as would protect the rights of all interested parties. In this case the city and its officers were prohibited by the injunction from performing an important public duty. Public officers who are required by law to perform duties involving the exercise of judgment and discretion cannot be controlled by injunction while in good faith performing such duties.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

February 19

1 *Visceral Angioneurosis. S. S. Cohen, Philadelphia.
2 *Thymus Gland Treatment of Certain Diseases. F. Gwyer, New York.
3 Dietetic Points in the Home Treatment of Tuberculosis. H. S. Anders, Philadelphia.
4 Treatment of Cervical Tuberculous Lymphadenitis and Tuberculous Dermatosis by the *X*-ray. R. H. Boggs, Pittsburg.
5 The Fight Against Tuberculosis. W. S. Mills, New York.
6 Piper Methysticum or Kava in its Effects in Gonorrhea. P. Bartholow, New York.
7 Multiple Fracture of Both Bones of Leg and Dislocation of the Ankle Treated by Passive Exercise. F. T. Woodbury, Fort Assiniboine, Mont.
8 Hypertrophy of the Mamma; Male and Female. W. A. Tatchell, Hankow, Central China.
9 Primary Sarcoma of the Ciliary Body. E. L. Klopp, Philadelphia.

1. **Visceral Angioneurosis.**—By the term visceral angioneurosis it is intended to imply that the manifestations of disordered function under discussion arise from circulatory disturbances rather than from primary tissue change in the organs affected, and to suggest their relationship with the familiar circulatory disturbances in the skin to which the term angioneurosis is commonly applied. The symptomatology of the visceral angioneurosis is multiform and somewhat vague. The final element in the diagnosis, however, is the patient—his physical characteristics, his reaction to environmental change, his familial and hereditary liabilities, and his previous personal pathologic history. Cohen reports 15 cases.

2. **Thymus Gland Treatment of Certain Diseases.**—At the end of three years work Gwyer is more than ever fixed in his belief that in the use of thymus gland will eventually be found a valuable treatment for cancer, for that class of diseases due to improper metabolism, and possibly for tuberculosis. In his work, either the dried powdered thymus was

used in doses varying from 30 to 120 grains, 3 or 4 times a day, or one of a number of special preparations. Gwyer says that there are two difficulties in treatment by thymus; the one is to find the proper preparation, the other the proper dosage. He is now using the fresh thymus of calves, dried by himself. He is convinced that the entire gland contains substances which at least retard and limit its action and very likely one or more of its constituents antagonize others which have a curative value. The diseases experimented on were goiter, arteriosclerosis, rheumatoid arthritis, hemorrhoids, cystic tumor of breast, pulmonary tuberculosis and cancer.

Medical Record, New York

February 19

10 *The Thalamic Syndrome. S. E. Jelliffe, New York.
11 Influence of Alcohol in Certain Diseases of the Skin. L. D. Bulkley, New York.
12 *Compensatory Diarrhea. G. M. Niles, Atlanta.
13 Cancerous and Non-Cancerous Pyloric Obstruction. A. Goldman, New York.
14 *Tetanus with Point of Infection the Cavity of a Tooth. W. H. Luckett, New York.
15 Is Congenital Cataract Caused by Dystocia. G. E. Barnes, Herkimer, N. Y.
16 *An Irrigating Stone Searcher. V. C. Pedersen, New York.

10. **The Thalamic Syndrome.**—The symptoms of this syndrome are superficial persistent hemianesthesia of organic nature for sensibility, pain, tact, and temperature; mild hemiplegia without contracture, rapidly regressive; mild hemiataxia and astereognosis; severe pains in the hemiplegic side, paroxysmal, and intolerable; choreoathetoid movements of the members of the paralyzed side. Jelliffe also gives the history and autopsy of the case reported by Déjerine and Egger, on which the syndrome was formulated. The autopsy showed a lesion occupying the posterior external part of the optic thalamus at all its levels. The lateral internal and external nuclei were destroyed in their posterior third. There were secondary degenerations in the posterior part of the posterior segment of the internal capsule.

12. **Compensatory Diarrhea.**—Niles states that there are diarrheas that seem to be salutary in their effects. He calls these compensatory. There are, first, those that are concomitant with deficient or perverse catabolic processes; such occur in gout, diabetes, goiter, Addison's disease, etc.; second, those resulting from functional or structural diseases of certain excretory organs, as in failure of renal functions and extensive burns; third, those occurring in old persons who are failing in strength, the result of physiologic decline. The diarrhea here consists of incompletely catabolized products that need to be excreted. Also certain toxic states with elimination of toxic products by the bowels, such as uremic diarrhea; women past the climacteric seem to need elimination of certain products, which is done by diarrheal discharges. Treatment of such diarrheas should not be directed to stopping the passages.

14. **Tetanus from Infection of Cavity of Tooth.**—Luckett reports a case of tetanus in a child of ten who had very badly decayed teeth, and no other lesion that could allow of the entrance of the tetanus germ. Animal inoculations and culture experiments showed that tetanus germs were present in the tooth cavity.

16. **Irrigating Stone Searcher.**—Pedersen describes a modification of the Posner and Thompson stone searcher that he considers preferable to either of them. The searcher is curved in the same radius as the standard sound; its extreme width is less than in other instruments, and a small stone is easily reached on account of the smallness of the beak.

Boston Medical and Surgical Journal

February 17

17 *Influence of Race on the Infant Mortality of Boston in 1909. R. C. Cabot and E. K. Ritchie, Boston.
18 *Obscure Affections of the Hip-Joint. A. T. Legg, Boston.
19 Symptomatology and Differential Diagnosis of Tuberculosis of the Cecum. C. G. Cumston, Boston.
20 *Simple and Clean Instrument for Vaccination. F. H. Williams, Boston.

17. **Influence of Race on Infant Mortality.**—Cabot and Ritchie found that the Jewish race in Boston far exceeds any other (a) in the number of stillborn babies, and (b) of digestive troubles proving fatal within the first two years of life.

The Italians in Boston suffered during 1909 far out of proportion as compared with the other races in the infant mortality from infectious diseases outside the gastrointestinal tract. The great bulk of these deaths were due to pneumonia. On the other hand, the Italian race is more fortunate than any other race in Boston in that it loses a far smaller number of children from congenital weaknesses, prematurity and birth accidents.

The Irish have the best record as regards stillbirths, and lose a remarkably small number of babies from infectious disease. They fare better than the Jews or the Italians as regards practically every one of the causes of infant mortality, though in all these respects, except as regards prematurity, their record is somewhat worse than that of the "Americans."

As might be expected from their longer settlement in this country, the so-called "American" race loses fewer children per thousand births than any other race. This advantage holds good as regards every one of the causes of postnatal infant mortality with the exception of those classified under the term "prematurity." In deaths from this cause, the "American" race has the worst record of all, and in the number of stillbirths the "Americans" are far more afflicted than the Irish and almost equal the Italians, though the Jews fare worse still.

18. **Obscure Lesion of the Hip-Joint.**—The following facts, symptoms and signs were present in each of the five cases reported by Legg: (1) age, 5 to 8 years; (2) history of injury; (3) limp; (4) thickening about the neck of the femur; (5) absence of pain; (6) absence of constitutional symptoms; (7) little or no spasm; (8) absence of shortening. All these patients sought advice solely on account of the limp. In two of the cases (the first and the fourth) the condition of flattening of the head of the femur existed on both sides; and in both cases there was entire absence of symptoms in one of the hips. No opinion as to the nature of these cases is offered.

20. **Instrument for Vaccination.**—The instrument used by Williams consists of a piece of stiff platinum wire, 1 mm. in diameter and 5 cm. long, fused into a piece of glass tubing which serves as a handle. The other end of the wire, flattened by means of a hammer to a width of rather more than 2 mm., has been well rounded with a file and its edge roughened by making shallow cuts in it with a knife blade. This roughening is important, for if not done the instrument bores into the skin and causes unnecessary pain while the outer layer is being removed. To use the instrument, the platinum wire is first sterilized by heating to a red heat in a flame; it cools in a moment, and the end is then pressed gently against the tense skin, which has also been sterilized, and the handle rotated between the thumb and finger of the right hand until the serum appears.

Lancet-Clinic, Cincinnati

February 5

21 Cerebral Decompression. A. Schachner, Louisville.
22 *Surgical Treatment of Exophthalmic Goiter. A. J. Ochsner, Chicago.
23 *Postoperative Results in Exophthalmic Goiters and Tumors. G. W. Crile, Cleveland.
24 *Primary Bilateral Ligation of the Upper Poles of the Thyroid for Exophthalmic Goiter. J. H. Jacobson, Toledo.
25 Pyemic Poisoning Caused by Pus in the antrum. R. J. Porre, Cincinnati.

February 12

26 *Gangrene from Syphilitic Endarteritis. A. Ravogli, Cincinnati.
27 Medicolegal Expert Testimony. B. F. Beebe, Cincinnati.

22, 23, 24. Abstracted in THE JOURNAL, Nov. 13, 1909, pp. 1675, 1676.

26. **Gangrene.**—Ravogli emphasizes the fact that when gangrene is produced by syphilitic infection, heroic antisyphilitic treatment has to be resorted to. In several cases through treatment the gangrene has been limited, the necrotic surface has sloughed off, and good cicatrization has followed. Of course, no benefit is to be expected from the treatment of the necrotic tissues, nor any effect whatever on the thrombosed arteries or veins. But when the syphilitic process has acted on the small vessels, then the limitation of the process can be obtained. In all Ravogli's cases tonic treatment, and

especially quinin in large doses, has been found of value to subdue septic condition. Ravogli concludes as follows:

1. Syphilis is liable to induce gangrene at any period of the disease. 2. Gangrene *en masse* occurs more frequently from endarteritis in the late stage of syphilis. 3. Gangrene may be the result of an acute peripheral endoangioitis of the small arteries, causing necrosis of superficial areas of the skin. 4. Gangrene may be the result of the pressure of the infiltrating elements on the blood vessels and on the tissues in the center of deep syphilitic lesions.

Virginia Medical Semi-Monthly, Richmond

January 21

28 *Hematology of Pellagra. C. H. Lavinder, Washington, D. C.
29 Education of the Public on the Cancer Problem. S. Leigh, Norfolk, Va.
30 *Congenital Word Blindness as a Cause of Backwardness in School Children: Case Associated with Stuttering. E. B. McCready, Pittsburg.
31 Treatment of Enlarged Prostate and of Chronic Prostatitis with Electricity. J. C. Walton, Richmond, Va.
32 Medical Antagonisms. F. L. Biscoe, Washington, D. C.

28. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1664.

30. Published in the *Pennsylvania Medical Journal*, January, 1909, and abstracted in this issue of THE JOURNAL, article No. 50.

Archives of Pediatrics, New York

January

33 Pneumococcus Infection. W. L. Carr, New York.
34 Meningism: A Consideration of the Syndrome of Dupré. L. Porter, San Francisco.
35 *Protective Action of the Colloids in Milk: Some Ultramicroscopic Observations. J. Alexander and J. G. M. Bullowa, New York.

35. **Colloids in Milk.**—According to Alexander and Bullowa the casein of milk is an irreversible, or coagulating, or unstable colloid, which is protected by lactalbumin, a reversible or stable colloid. In the modification of cows' milk for infant feeding it is necessary not only to consider the percentage of total proteids, fat, etc., present, but to see that the casein is adequately protected. The authors emphasize that the casein exists in cows' milk in an already formed higher degree of colloidal aggregation. Bald chemical analysis, without taking into consideration the principle of colloidal protection, is in their opinion, an insufficient criterion for the actual digestibility or availability of food.

Kansas City Medical Index-Lancet

January

36 Syphilis of the Nervous System. J. Punton, Kansas City.
37 The Emmanuel Movement. E. C. Smith, Kansas City.
38 Deep-Seated Pathologic Conditions of the Neck. F. J. Moenninghoff, Kansas City.
39 Gonorrhea and its Management, Especially in Women. C. B. Hardin, Kansas City.
40 The Advantage of Psychometric Methods in Diagnosis, Prognosis and Treatment of Cerebral Disorders (continued). T. A. Williams, Washington, D. C.

February

41 A Famous Case Recalled. J. Punton, Kansas City.
42 Diagnosis and Treatment of Empyema. E. H. Musson, Norborne, Mo.
43 Abdominal Myomectomy for Large Uterine Fibroids. H. P. Kuhn and W. I. Frick, Kansas City.

Pennsylvania Medical Journal, Athens

January

44 Progress in Obstetrics. G. M. Boyd, Philadelphia.
45 *State Appropriations to Hospitals not Under State Control. J. R. Roberts, Philadelphia.
46 *What Other States are Doing in Hospital Support. C. McIntire, Easton.
47 *Advantages of the Pennsylvania System of Hospital Support. H. G. McCormick, Williamsport.
48 *Objections to Pennsylvania Method of Hospital Appropriation. L. F. Flick, Philadelphia.
49 *Suggested Improvements in Hospital Support. W. L. Estes, South Bethlehem.
50 *Congenital Word Blindness as Cause of Backwardness in School Children: A Case Associated with Stuttering. E. B. McCready, Pittsburg.
51 *Surgical Treatment of Diffuse Suppurative Peritonitis. G. D. Nutt, Williamsport.
52 *Relation of the Visual Field to the Investigation of Certain Psychoses and Neuroses. G. E. de Schweinitz, Philadelphia.

45, 46, 47, 48, 49. Abstracted in THE JOURNAL, Oct. 23, 1909, pp. 1424, 1425.

50. **Congenital Word Blindness.**—McCready holds that although but some 41 cases have been closely observed of this condition, the number represents but a small proportion of the cases. That there is a distinct hereditary influence there can be no doubt. In two of the cases reported development in other directions was slow, while other cases showed evidences of a neurotic tendency. In nearly every case the patient, with the exception of his visual defect, was of average or above average intelligence. In the case reported, the patient, aged 20, family history negative, had enteritis when an infant. At the age of 4 years he had an attack of pneumonia with cerebral symptoms. He had great difficulty in reading from the time he first went to school, and began to stutter from fright at the age of 10. He could recognize letters and numerals, but very few words. The boy is of average intelligence but much retarded on account of defects. The object aimed at after correction of the speech defect was the development of the visual word center in the right hemisphere, and the establishment of functional relationship between it and the auditory word center as well as Broca's center in the left. His improvement has been satisfactory.

51. **Surgical Treatment of Diffuse Suppurative Peritonitis.**—Nutt claims that country surgeons often see many severe cases of diffuse suppurative peritonitis in which it is utterly impossible to select the time of operation or to convey the patients to a hospital, but in which by the use of stomach lavage, drugs that will fortify the heart action and prevent shock, and a small amount of etherization, a quick operation can be done with almost absolute certainty of success. In Nutt's opinion, the whole question resolves itself into the ability of the patient to stand the anesthetic; if equal to it, and if operation can be borne, an immediate operation seems to be the most reasonable plan and to afford the best prospect for the life and future health of the individual. To fortify the patient for a rapid operation, a thorough flushing of the stomach is necessary if there has been suspicious vomiting. Heart stimulants should be given an hour before operation. Oxygen administration during anesthesia is valuable.

52. **Visual Field in Certain Psychoses and Neuroses.**—De Schweinitz holds that there is no form of visual field pathognomonic of neurasthenia, but, other things being equal, a typical fatigue field is important in the symptom complex of this disease. Perimetric examination has a certain value in the differential diagnosis of hysteria and neurasthenia, inasmuch as a typical fatigue field of any variety is more likely to be found in a pure neurasthenia than in hysteria or hystero-neurasthenia. A stable concentrically contracted and tubular field, with inversion of the color lines, is a strong indication of hysteria, but such a visual field is not diagnostic of this psychosis and may be produced by conditions already named. Fatigue phenomena of the visual field are not limited to the periphery, but may appear in its center, and interpret macular exhaustion, and are equally important from a diagnostic standpoint. Certain varieties of central exhaustion scotomas are with difficulty distinguished from other central scotomas, the result of mild or attenuated forms of retrobulbar neuritis. In each instance it is possible that the phenomena depend on an edema of the optic nerve axis near the foramen. Slight forms of macular fatigue, so common in neurasthenic patients, probably explain many of the failures to relieve by glasses the asthenopia which is so prominent a symptom of many of these individuals.

Illinois Medical Journal, Springfield

January

53 Mistakes and Misconceptions in the Modern Treatment of Tuberculosis. J. W. Pettit, Ottawa.
54 Prevention of Tuberculosis. C. J. Whalen, Chicago.
55 Tubercle Bacilli in the Circulating Blood. F. Tice, Chicago.
56 Tuberculin Therapy in Pulmonary Tuberculosis. C. W. Leigh, Chicago.
57 Specific Treatment of Pulmonary Tuberculosis. K. von Ruck and S. von Ruck, Asheville, N. C.
58 Incipient Tuberculosis: Diagnosis and Treatment. C. W. Chapin, Weldon.
59 Tuberculous Peritonitis. R. A. Noble, Bloomington, Ill.
60 Pellagra. C. H. Lavinder, Washington, D. C.
61 Pellagra. W. J. MacNeal, Urbana.

American Journal of Medical Sciences, Philadelphia

February

62 Treatment of Acute Otitic Meningitis. E. B. Dench, New York.
63 *Treatment of Chorea in Children. J. Allan, Edinburgh, Scotland.
64 Therapeutic Use of Passive Hyperemia (Bier). G. P. Müller, Philadelphia.

65 Diagnosis and Surgical Treatment of Inguinal Hernia. W. L. Rodman and C. W. Bonney, Philadelphia.
66 Diagnosis of Cancer of the Intestines. W. F. Cheney, San Francisco.
67 Routine Examination of the Esophagus. C. M. Cooper, San Francisco.
68 Gastric Secretion. E. A. Aronson.
69 *Local Asphyxia of the Extremities (Raynaud's Disease) a Hitherto Undescribed Complication of Intermittent Achylia Gastrica. G. A. Friedman, New York.
70 Clinical Observations in Heart-Block. W. W. Herrick, New York.
71 *Physiology and Pathology of Creatinin and Creatin. V. C. Myers, New York.
72 *Skin Reaction in Carcinoma from Subcutaneous Injection of Human Red Blood Cells. C. A. Elsberg, H. Neuhof and S. H. Geist, New York.

63. This article will be discussed in the Department of Therapeutics.

69. **Local Asphyxia of the Extremities.**—The patient, a woman, aged 23, was in perfect health until the age of 18, when, soon after an illness with an obstinate form of malaria, she noticed the development of her present malady. Though the condition of all four extremities is better in the summer, yet even then her skin does not functionate so actively as the skin in other people. The pain sense is lost not only in the affected parts, but nearly all over the skin and on the anterior part of the tongue, with diminution of the senses of temperature and touch. While the heart and palpable vessels are normal, the small arteries of the fundus show a marked contraction when the asphyxia of the extremities is most pronounced. There is slight secondary anemia, but the most striking feature is the fact that, without dyspeptic symptoms, there is a lack of free hydrochloric acid and the presence of mucus in the stomach contents on those days when the fingers and toes show the most characteristic picture of local asphyxia; while on the days when the extremities are red no mucus is present and the quantitative examination shows merely hypoacidity.

71. **Creatinin and Creatin.**—The significant physiologic fact to be borne in mind in regard to creatinin, says Myers, is the absolute constancy of its elimination, different for different individuals, but wholly independent of the volume of the urine and the amount of nitrogen excreted. Creatinin is an index of some special process of normal metabolism taking place largely, if not entirely, in the muscles. The intensity of this process appears to be associated with the muscular strength of the individual. In pathologic conditions, the creatinin excretion is usually low. From this point of view, the creatinin output may be looked on, at least to a certain extent, as an index of the physical condition of the patient. The creatinin elimination appears to be especially low in conditions associated with muscular weakness or inefficiency. It is, however, slightly increased in acute fevers and here does not run parallel with the muscular strength. In diseases in which the creatinin output is low, creatin is generally excreted. Creatin is not normally present in the urine, and its excretion may be regarded as pathologic. Furthermore, it is usually found to be associated with a loss of muscle protein, thus indicating that the source of the endogenous urinary creatin is the creatin of muscle tissue.

72. **Skin Reaction in Carcinoma.**—The authors found that the subcutaneous injection of human red blood cells prepared in the manner described is in certain individuals followed by a characteristic and easily recognizable local skin lesion or reaction at the site of the injection. The majority of the patients (89.9 per cent.) in whom this skin reaction was observed were suffering from carcinoma. The majority of the patients (94.3 per cent.) in whom no characteristic skin lesion followed the injection were free from carcinoma.

The blood is obtained in the following manner: Into an ordinary aspirating syringe of from 10 to 15 c.c. capacity a glass bead about the size of a split pea is placed, and the syringe and needle are boiled in normal saline solution. The anterior aspect of the elbow of the individual whose vein is to be aspirated is carefully cleaned with soap and water, alcohol and ether, and a vein made prominent by tying a bandage around the arm. Under proper aseptic precautions the vein is punctured and from 5 to 10 c.c. of blood is aspirated into the cooled syringe. The needle is then removed from the syringe, the end of the latter covered with a piece of sterile gauze, and the syringe shaken for ten minutes.

After the blood has been defibrinated in this manner, about 1 c.c. is expressed into each of a number of sterile test tubes that fit into an ordinary centrifuge, and that have been previously half filled with sterile normal salt solution. The usual bacteriologic technic (passing the ends of the test tubes through the flame, etc.) is employed to keep the contents of the tube sterile. The tubes are then placed in the centrifuge for ten minutes. The clear supernatant fluid is then carefully poured off from each tube under the proper precautions to prevent infection. Fresh sterile salt solution is added, the tubes are gently shaken to mix the blood with the solution, and the tubes are again centrifuged for ten minutes. The same process is repeated a third time. Then, after the supernatant fluid has been poured off, four times as much salt solution as there are cells by volume is added. Thus, approximately, a 20 per cent. suspension of washed red blood cell has been obtained. The tubes are kept in the ice chest for from 24 to 48 hours, and are then ready for use. Any tubes in which there is the slightest amount of laking must not be used. If careful technic has been employed, the red cell suspension will often be free from laking for three or four days.

It is important to select the proper individual from whom the blood is to be obtained. Tuberculosis and syphilis must be excluded, the patient must not only be free from any evidence of disease, but must not have been recently ill, nor have received any injury, must not have even the slightest operation, and must not have recently had an anesthetic. The blood of individuals who have had any of these conditions is unfit for injections. The blood can, however, be taken from a patient during the early stages of ether anesthesia. The authors have found that the most satisfactory blood is that obtained from little children, and in the hospital they have usually obtained it from little patients who were to be operated on for hernia.

A hypodermic syringe which has been boiled in normal saline solution and cooled is filled with the blood mixture. The reaction begins to show in about five hours after the injection; it gradually increases in intensity until it has reached its height in from six to eight hours. When fully developed, the reaction appears as a somewhat irregular oval area with a well-defined margin measuring from 1x2 to 3x5 cm. The margin is often surrounded by whitish areola. The color of the lesion varies from a brownish red to a maroon, with, rarely, a bluish tinge. The lesion is distinctly raised from the surrounding skin surface. The raised area has a slightly boggy feeling, as if there were a subcutaneous exudation, and it is often somewhat tender. When the lesion has disappeared there remains behind a flat, yellowish or greenish discoloration such as is left by any small ecchymosis. In those cases in which the characteristic lesion does not appear the skin either presents no change except the needle puncture, or a small flat area of varying color; rarely, the skin is raised, but of normal color. Up to the present time the authors have given 684 injections to 432 patients.

Journal of the Kansas Medical Society, Kansas City

January

73 Three Cases of Poliomyelitis; Salient Features of the Disease. F. A. Carmichael, Goodland.
74 Suggestion. C. C. Goddard, Leavenworth.
75 Placenta Prævia. J. D. Walthall, Paola.

Journal of the Missouri State Medical Association, St. Louis

January

76 Solidified Carbon Dioxid as a Topical Agent. J. Grindon, St. Louis.
77 Obesity. W. K. Statler, Oak Ridge.
78 Series of Appendix Cases. L. A. Todd, St. Joseph.
79 Extirpation of the Lachrymal Sac. C. Barck, St. Louis.
80 Scientific Employment of Drugs. W. R. Patterson, Tipton.
81 Surgical Dyspepsia. F. J. Moennighoff, Kansas City.

February

82 *Radical Cure of Hernia as seen by the Country Surgeon. C. H. Suddarth, Smithville.
83 Surgical Treatment of Amebic Dysentery by Appendicostomy. R. J. Bunch, St. Louis.
84 Practical Points in Abdominal Surgery. C. C. Morris, St. Louis.
85 Modern Surgery of the Rectum. J. S. Wallace, Brunswick.
86 Case of Ruptured Bladder. F. J. Tainter, St. Charles.
87 Progress in Medicine and Surgery. C. O. Dewey, Breckenridge.
88 *Malarial Infection in Children. S. P. Child, Kansas City.
89 Ocular Examination as an Aid to Prognosis in Suppurative Otitis Media. W. E. Klokke, St. Louis.

82. **Radical Cure of Hernias.**—Suddarth performs the Bassini operation but uses a No. 3 twenty-day catgut for suture material.

88. **Malarial Infection in Children.**—Child reports five cases of malaria; a pure tertian, three estivoautumnal and one mixed infection of tertian and estivoautumnal. The estivoautumnal cases were chronic in form and revealed in one or more instances a blood picture of true pernicious malaria.

Montreal Medical Journal

January

90 So-called Doubling of the Puncta Lacrimalia. F. T. Tooke, Montreal.
91 Impressions of the Sixteenth International Medical Congress at Budapest. R. H. Craig, Montreal.
92 Rabies in Canada. C. H. Higgins, Ottawa.
93 Action of Some Remedies on the Heart in Disease. V. W. Henderson, Toronto.
94 Retrospect of Some Ophthalmic Bacteriology. S. H. McKee, Montreal.
95 Tumor of the Vermis Inferior Cerebelli. C. K. Russel, Montreal.

Annals of Otology, Rhinology and Laryngology, St. Louis

December

96 Topographic Anatomy of the Thyroid. P. Potter, Butte, Mont.
97 *X*-Ray Examination of the Mastoid Region. S. Iglauer, Cincinnati.
98 Physiology and Development of the Nose and Accessory Sinuses and Nasal Reflexes; Especially the Function and Importance of the Turbinated Bodies. H. J. Hartz, Detroit.
99 Present Status of the Tonsil Operation; Collective Investigation. G. L. Richards, Fall River, Mass.
100 Cavernous Sinus Thrombosis. L. A. Coffin, New York.
101 Nasal Sarcoma Submitted as a Corollary to a Former Paper on the Same Subject. J. Price-Brown, Toronto.
102 Purulent Otitis Media of Infancy and Childhood. H. O. Reik, Baltimore.
103 Treatment of Otosclerosis. W. S. Bryant, New York.
104 Chronic Purulent Otitis Media in Adults. S. M. Smith, Philadelphia.
105 Spoon Enucleation of the Tonsil. A. M. MacWhinnie, Seattle, Wash.
106 Chronic Epipharyngeal Peritadenitis in Adults. J. E. Logan, Kansas City.
107 Incision for Submucous Resection. S. Yankauer, New York.
108 Amputation of Epiglottis in Laryngeal Tuberculosis. L. B. Lockard, Denver.
109 New Method for Inflating Eustachian Tube and Middle Ear. E. P. Fowler, New York.
110 Simple Acumetric Formula Adopted by Eighth International Otologic Congress at Budapest, 1909. J. Möller, Copenhagen, Denmark.
111 New Plastic Mastoid Operation for Acute Mastoiditis. F. T. Hopkins, New York.
112 Primary Carcinoma of the Trachea. T. P. Berens, New York.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

January

113 Rational Treatment of Hypertension and Sclerosis of the Arterial System. C. Pope, Philadelphia.
114 Facial Spasm and Tic: Torticollis and Treatment. T. A. Williams, Washington, D. C.
115 Hernia: Etiology and Relation to the Earning Capacity of the Individual. A. C. Wood, Philadelphia.
116 Tabes Dorsalis. J. V. Shoemaker, Philadelphia.
117 Ophthalmia Neonatorum. L. W. Fox, Philadelphia.
118 Treatment of Pneumonia. C. S. Ashfield, South Norwood, O.
119 Differential Diagnosis of Retention of Urine and Anuria, and their Relation and Significance to General Medicine. W. Karo, Berlin, Ger.
120 Treatment of Syphilis. H. M. Christian, Philadelphia.

Alabama Medical Journal, Birmingham

January

121 Relations Between Systemic and Ocular Lesions. H. Woods, Baltimore.
122 Complete Extirpation of Colon. E. M. Prince, Birmingham.
123 *Dressing for Burns. G. A. Hogan, Birmingham.
124 The Jefferson County Medical Society. J. D. Heacock, Birmingham.
125 *X*-Ray in Treatment of Cancer. J. H. Edmondson, Birmingham.

123. **Dressing for Burns.**—The burnt area being sponged off with sterile normal salt solution, Hogan applies perforated oiled silk directly to this area. On this he puts sterile gauze, cotton, and a bandage. The perforations allow drainage and at subsequent dressings the gauze is removed, also that part of the perforated oiled silk which does not adhere to the burn. This oiled silk which has been removed may be used after being cleansed in normal solt solution and applied as before. Some of the advantages claimed for this dressing are:

1. It is rarely necessary to give opiates.
2. There is very little pain in applying or changing this dressing.
3. These perforations afford better drainage than can be obtained from the use of other dressings.
4. There is a minimum amount of danger of infection, for by using this dressing there is practically an absence of traumatism in changing the dressing and the drainage is better.
5. The oiled silk seems to act as a skin graft and healing is more rapid.

Memphis Medical Monthly

January

126 What Class of Tuberculosis Patients Shall We Send West? J. W. Laws, Lincoln, N. M.
127 The Importance of Pain. F. C. Spaulding, Crawford, Miss.
128 Intestinal Obstruction. W. S. Anderson, Memphis.
129 Home Treatment of Tuberculosis. H. E. Griffin, Coffeeville, Miss.

Western Medical Review, Omaha

January

133 Uterine Cancer. W. O. Henry, Omaha.
134 Early Diagnosis of Gall-Stones. J. E. Summers, Omaha.
135 *Mental Aberration Following Mastoid Operations. H. Gifford, Omaha.
136 Poisoning by Bismuth Subnitrate in the Use of Bismuth Paste. A. B. Anderson, Pawnee City, Neb.
137 Dystocia from Inertia. A. B. Somers, Omaha.

135. **Mental Aberration Following Mastoid Operation.**—The first patient was a woman of 65, with a double mastoiditis following acute otitis media during attack of grippe. Both mastoids were opened, and considerable pus was evacuated from each. The patient made an ordinarily rapid recovery without any unusual objective symptoms, but following the operation she seemed to be in a somewhat dazed condition, and at the end of two weeks, when her mind seemed to be entirely normal again, it was found that the entire period from the day preceding the operation to the end of the two weeks was a perfect blank so far as she was concerned. She had absolutely no recollection of the operation, nor of the preparations for it, nor of anything that had occurred in the meantime. In other respects there was nothing unusual about the case; her mind became entirely normal and she made a good recovery. The second patient, a man, within 24 hours after the operation showed decided signs of mental aberration and became unruly and very talkative; and in the course of the next day or two became a furious maniac: so entirely unmanageable that he had to be put in a straight jacket and confined to a cage bed in which he could thrash about without injuring any members of the hospital staff. By rubbing his head about he made any attempt at dressing the wound entirely useless, but nevertheless it progressed beautifully, and his ear gave him no further trouble. His mental condition, however, showed so little signs of improvement that he was removed to the state asylum, where at the end of about two months after the operation, he recovered entirely. He returned to his business and had no further relapse, either mentally or aurally. The third patient, a woman, presented plain symptoms of mastoid abscess and Gifford performed a radical operation, removing much pus and old cholesteatomatous masses from the antrum and adjoining cells. One week after the operation, she became semicomatose, with a slow pulse and nearly normal temperature. The symptoms of brain abscess were so marked that Gifford at once removed the roof of the antrum and of the tympanic cavity and exposed the dura for a space one inch by one-half inch in extent. An incision into the brain immediately above the tympanic cavity gave no result, then an incision up and slightly back one inch posterior to the auditory canal opened a brain abscess from which about three drams of pus was evacuated. A glass drainage tube was inserted into the cavity and the rest of the wound dressed with iodoform gauze. The woman improved rapidly and so that as far as the ear and brain wounds were concerned the cure was complete, although she developed an apparently permanent paralysis of the right third nerve; but her mind never became perfectly clear and gradually symptoms of profound melancholia with delusions developed, which have persisted up to the present time, that is, for nearly a year after the operation.

Journal Arkansas Medical Society, Little Rock

January

138 Extrauterine Pregnancy. W. V. Laws and W. Chestnut, Hot Springs.
139 Extrauterine Pregnancy. G. E. Cannon, Magnolia.
140 Extrauterine Pregnancy. W. F. Smith, Clarksville.
141 Relief of Suffering During Labor. G. W. Murphy, Strong.
142 A Medicolegal Case. H. C. Dunavant, Osceola.

Laryngoscope, St. Louis

January

143 *Head Nystagmus. E. Urbantschitsch, Vienna.
144 Social, Hygienic and Economic Aspect of the Ear. C. J. Blake, Boston.
145 Social, Hygienic and Economic Aspect of the Nose. J. J. Kyle, Indianapolis.

146 Sociologic, Hygienic and Economic Aspect of the Throat. W. A. Wells, Washington, D. C.
147 Subjective and Objective Sense of Sound Perception. D. B. Kyle, Philadelphia.
148 Endocranial Complications of Nasal Origin. W. Freudenthal, New York.
149 Method of Opening the Mastoid Antrum Through the External Auditory Meatus as the First Step in the Mastoid Operation. S. Iglauer, Cincinnati.
150 Double Mastoiditis Showing Symptoms of Intracranial Involvement—Recovery Without Opening Cranial Cavity. L. Emerson, Orange, N. J.
151 Exhibition of Specimen of Sequestrum of Entire Petrosa. T. P. Berens, New York.
152 *New Method of Packing the Nostril, Designed to Prevent Postoperative Hemorrhage and a New Quadrivalve Self-Retaining Nasal Speculum. W. E. Casselberry, Chicago.
153 Simple Air-Compressing Apparatus. F. W. Dean, Council Bluffs, Ia.
154 Improved Tonsil Tractors. G. C. Hall, Louisville.

143. **Head Nystagmus.**—In Urbantschitsch's experiments a free sweat of the head and more frequently over the entire body occurred with conspicuous frequency when labyrinth stimuli were produced (with eyes bandaged). In some cases trembling of the lower extremities (knees) occurred; in others, tremor or slight swaying of the head was noticed. This tremor was in some cases continued for some time; in others it occurred only periodically (for a shorter time). No regularity in the appearance of these symptoms in the several patients could be found not even in the same patient, when these tests were repeated on different days. It even seemed that the first experiments yielded more definite results than subsequent ones. It is not unlikely that the patient may become accustomed to such stimuli, so that the slightly changed muscle tonus later may be unconsciously compensated by repetition.

Hyperhidrosis was the most regularly recurring symptom observed in these experiments. Urbantschitsch was unable to determine what bearing this might have on labyrinth tonus. A reflex irritation of the sweat secreting center cannot be excluded. He inclines to the opinion, however, that it is due to a stimulus of the sympathetic nerve by way of the spinovestibular route. His experiments would indicate at least, that it is possible to establish by means of certain methods corroborative evidence of the spino-vestibular route.

152. **New Method of Packing Nostril.**—The tampon which Casselberry has used satisfactorily for three years is composed of a rubber finger cot or, preferably of what might be called a club-finger cot which, after insertion into the nostril, is filled by means of an ordinary tubular gauze packer with a strip of sterile gauze, 1¼ inches in width, by a yard or more in length. The finger cot and packer having been sterilized by boiling, the packer, ready armed with gauze, is used first as a stem on which the rubber case, lubricated and held for the moment lengthwise on the stretch, is carried into place, extending from front to back in the nostril with the closed bulbous end just overlapping the choana into the nasopharynx. Both the packer and cot are then in position to pass the gauze which at the start should be packed with special firmness in order to form the posterior plug by an over-distention of the expanded end of the finger cot where the rubber is reinforced to withstand the strain. The club-finger cot, with its bulbous closed extremity and proximal slight constriction of its caliber, is especially suitable for forming such a plug in and behind the posterior naris, although an ordinary finger cot of large size or one cut from a surgeon's rubber glove, can be made to serve the purpose, almost, but not quite as well, by extra firmness, albeit gentleness, in packing the rear end.

Not only does the incasing of the gauze in rubber render the tampon comparatively free from the pushing and pulling requirements of uncovered gauze during its insertion and withdrawal, but its smooth surface permits of a ready detachment from the wound as soon as its purpose is fulfilled, usually by the end of eighteen hours, instead of forty-eight, when by first withdrawing the gauze from the rubber the flaccid case will slip from the nostril.

American Medicine, New York

January

155 Untoward Effects of Thyroid Medication and How to Forego Them. H. Stern, New York City.
156 Method for the Instruction of the Public Along Medical Lines. H. S. Baketel, New York.
157 The Future American. C. W. Woodruff, U. S. Army.
158 *Iodin in Sterilization of the Skin. I. S. Stone, Washington, D. C.
159 Campaign of the German Hospital of New York City Against Pulmonary Tuberculosis. S. Breitenfeld, New York.
160 Need of Sedative Treatment in Ophthalmic Surgery. J. H. Oby, Brooklyn.
161 The Urticaria of Infancy. U. J. Wile, New York.
162 Ionization and Oxidation. J. P. Dickson, Franklin, Ia.

158. Abstracted in THE JOURNAL, Jan. 15, 1910, p. 234.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

February 5

1 *Constrictions and Occlusions of the Alimentary Tract of Congenital or Obscure Origin. A. Keith.
2 Some Aspects of Poliomyelitis. Sir W. R. Gowers.
3 *Heredity and Disease. E. LeC. Lancaster.
4 Use of the Cystoscope, the Urine Separator, and the Ureteral Catheter. E. Deanesly.
5 Treatment of Fractured Limbs in Workmen. A. P. Gibbons.
6 Futility of the Official Tests for Color Blindness. T. H. Butler.
7 *An Interesting Case of Congenital Cataract. C. Killick.
8 Aneurism in a Woman. H. G. Frean.
9 Severe Antepartum Hemorrhage Due to Spontaneous Rupture of Vaginal Varix. C. E. Purslow and G. J. Branson.

1. **Constrictions of Alimentary Tract.**—The following list of specimens showing constrictions and occlusions of the alimentary tract of congenital or obscure origin in the medical museums of London is the basis of Keith's paper:

1. Non-cicatricial stenosis of the upper esophageal orifice, 9 cases.
2. Stenosis of the lower esophageal orifice, with dilatation of the esophagus, 6 cases.
3. Congenital stenosis of the mid-esophagus, 2 cases.
4. Malformation of the tracheoesophageal septum, 14 cases.
5. Hour-glass constriction of the stomach, 14 cases.
6. Hypertrophic stenosis of the pylorus, 14 cases.
7. Congenital occlusions of the duodenum, 7 cases.
8. Congenital occlusions and constrictions of the jejunum and ileum (not including those associated with Meckel's diverticulum), 15 cases.
9. Congenital occlusion at the ileocecal junction, 1 case.
10. Congenital occlusion of the colon, 4 cases.

3. **Heredity and Disease.**—The study of heredity is regarded by Lancaster as being at the same time depressing and encouraging. It is depressing because there is no getting away from the fact that there does exist some actual physical protoplasmic basis through which disease or the tendency to disease is handed down from germ cell to germ cell—even if we do not admit the whole Weismannian conception of chromosome, *i. e.*, determinant and biophor—and that no amount of care or education, no change in environment, no choice of function can, so far as we know, alter by one jot or one tittle the constitution of the germ plasm that each of us has received from parents and may transmit to offspring. It is encouraging because more and more it becomes clear that whatever of abnormal is contained within the inheritance it is not disease so much as predisposition to disease, and that each item of an inheritance requires suitable environment in which to appear, and suitable functioning for the encouragement of its growth. The deliberate improvement of the health of the race by restriction of the mating of those whose inheritance is physically or morally bad, except in extreme and obvious cases, is, in Lancaster's opinion, an idealistic dream for a future that may never arrive; the world gets more, not less, sentimental as it grows older. For the present, efforts toward raising the general health of the race should be directed toward improving the environment and providing for proper functioning.

7. **Congenital Cataract.**—Killick's patient, a woman, aged 36, was born blind. Several operations were performed, but apparently the only benefit which the patient received consisted in the fact that she was thenceforth able to distinguish between certain colors, especially if bright; for example, in certain lights she could make out that grass was green, and could also tell when she was wearing a red dress. Examination of the eyes by Killick showed that they were habitually directed downward, exhibited slow lateral nystagmus, and were so covered by the upper lids that only from one-half to two-thirds of the cornea was left exposed. The left eye was hopelessly disorganized, totally blind, and in an advanced

condition of phthisis bulbi. The right eye, on the other hand, though appearing somewhat sunken and smaller than normal, the cornea only measuring about a centimeter in diameter, was much more hopeful in appearance. The cornea was transparent except at one spot near the outer margin, where the scar of a needle puncture was visible; the anterior chamber was of average depth, and the iris appeared healthy, but was drawn upward as a result of some previous operation, but not a trace of a pupil could be seen. The tension of the eyeball was T — ?. Vision amounted to perception of light, but Killick found on trying the projection of light test in the dark room that the retina was perfectly sensitive and functional throughout the entire extent. An iridotomy was done, and two days after this operation the patient could see to get about.

Lancet, London

February 5

10 Electrotherapeutics in Gynecology. S. Sloan.
11 *Points in Diagnosis and Treatment of Certain Nervous Affections. J. Taylor.
12 Ankylostomiasis a Menace to the Industrial Life of Non-tropical Countries. Sir T. Oliver.
13 *Simple and Efficient Operation for Hemorrhoids. N. Porritt.
14 External Examination of Alimentary Canal. L. Mac-Auliffe.
15 Enterectomy for Intussusception under Spinal Anesthesia in An Infant Seven Months Old: Recovery. H. A. T. Fairbank and W. Vickers.
16 Clinical Apparatus for Obtaining Graphic Records of Blood Pressure. C. Singer.
17 Fatal Cerebral Hemorrhage Following Gastrojejunostomy for Pyloric Obstruction. C. H. Whiteford.
18 The Circulatory System (continued). H. Campbell.

11. **Treatment of Certain Nervous Affections.**—Speaking of epilepsy, Taylor says that bromid is, of course, the most useful drug we have for this disease. For a case of epilepsy in which the attacks occur indifferently at any time during the 24 hours it is best to give it in good doses—from 15 to 25 grains—three times daily. In many cases, however, the fit occurs only during sleep, and in these it is best to give a fairly large dose of bromid—from 30 to 40 grains—at bed time. In such cases it is well to combine with the bromid a small dose of digitalis. In all cases in which Taylor gives bromid he also gives nux vomica. If this rule is followed, he says, one will not see the condition of profound depression which occurs when bromid of potassium alone is used. The nux vomica does not interfere with the effect of the bromid in controlling the fits.

There is a class of cases in which the fits tend to occur nearly always in the early morning—very often while the patient is dressing—and these are most efficaciously treated by advising the individual to have an early cup of tea or milk, followed by a dose of a bromid mixture, half an hour before getting out of bed. This simple expedient is often successful in getting rid of troublesome fits. Should it happen only to move them to some other part of the 24 hours they must be pursued to their new time and similarly treated.

In many cases, especially long-standing cases in which the patients have been treated with bromids, the addition of borax is sometimes followed by gratifying results. Belladonna also is useful, sometimes alone, sometimes with bromid, especially in cases of *petit mal*, which, unfortunately, are in Taylor's experience less tractable than the severer cases.

Of bromid salts, he nearly always uses either the sodium or strontium salt—practically never the potassium, which has no advantages over the others, is much more depressing, and certainly tends to the production of acne. Bromid of strontium has the advantage that it has little tendency—in most patients none—to produce acne. Bromid of zinc can only be used in small doses, as it is emetic in larger ones, but it seems to be useful in some cases of *petit mal*.

13. **Operation for Hemorrhoids.**—In the method employed by Porritt, the sphincter having been stretched, one of the hemorrhoidal masses is seized with vulsellum forceps and pulled well out of the anus. It is encircled with a loose purse-string suture of fine Pagenstecher thread. Above, the purse-string suture entered the healthy rectal mucous membrane beyond the hemorrhoids; below, it took up that just within the anus; while at each side it was inserted far enough apart to allow the blades of the crushing instrument to grasp the base or pedicle of the pile seized. It is essential that the tumor be pulled well down. As soon as the purse-string suture is placed the base of the pile is crushed. When the clamp is released, a broad flat layer of crushed tissue connects the pile with the rectum. The pedicle is now folded once on itself by giving a half turn to the pile, the clamp is reapplied, and crushing repeated. When the clamp is removed something like a pedicle has been made, but another half-turn, followed by another crushing leaves nothing more than a fine pedicle of crushed tissue. This is tied with a fine ligature beyond the clamp and the clamp is finally removed. The pile is then snipped away through the crushed pedicle. The stump of crushed tissue with the ligature on it is then buried by drawing tight and tying the purse-string suture already inserted. Other portions of the mass are isolated and removed in the same way.

Medical Press and Circular, London

February 2

19 Treatment of High Blood-Pressure. G. Oliver.
20 Indications for Gastroenterostomy. T. Carwardine.
21 Appendicitis, with Complications. R. A. Stoney.
22 *Total Anesthesia by Injection of Cocain into the Veins. C. Ritter.

22. **Anesthesia by Injection of Cocain into Veins.**—By injecting cocain into a vein Ritter has succeeded in producing complete anesthesia. He made the experiments on dogs injected with cocain into the superficial veins of the leg, while the animal was standing, or he had the animal bound to the table and made the injection into the crural vein. Even during the injection the animal was remarkably quiet. This showed itself most plainly when the dog was not tied, but held by an attendant. Even dogs that were very much excited, and at other times have attempted to spring from the table, did not as a rule require to be kept fixed. If they were bound and lying down the flaccidity of the muscles was characteristic. Sometimes the animal passed urine. Those that howled and whined before lay quite still. At the same time, however, they remain wakeful. They followed the operator with the eye and moved the head from side to side. The eyes were open and reacted to the slightest stimulus. The pupils were dilated. All movements were restrained. The respirations were calm, equable, mostly slightly accelerated. Sensation of pain disappeared in from three to five minutes. Respiration went on quietly. Wounds and ligature of vessels and nerves were painless.

The time the anesthesia lasts is varied, sometimes only fifteen minutes, usually half an hour or more. After this the animal's normal sensations return. Not one of the animals on which Ritter investigated died, and he noticed disagreeable by-effects in only a few. This happened usually with strong doses and small dogs. One dog reacted in this way every time, even with small doses. He became restless, threw his head about quicker and quicker. If he was loosed and set on his feet, he ran about with marvelous quickness, either to the left or to the right, and again toward the left in a circle. This often lasted fifteen minutes. Within from thirty minutes to an hour after the injection, he became quiet again. Real convulsions Ritter never saw.

Clinical Journal, London

February 2

23 *Diseases Simulating Cystitis in the Female. H. Fenwick.
24 Common Errors in Infant Feeding. E. Pritchard.
25 The "Cure" at Contrexéville (Vosges). J. H. Barnard.

23. **Disease Simulating Cystitis in the Female.**—The three diseases of the upper urinary tract in the female discussed by Fenwick which simulate cystitis and in which vesical irrigation is not only painful, but worse than useless, are: (1) *Bacillus coli communis* infection of the kidney (hematogenous); (2) tuberculosis of the kidney (hematogenous); (3) ureteritis due to uterine "sag." Each condition is discussed in detail and illustrative cases are cited.

Indian Medical Gazette, Calcutta

January

26 Minor Medical Services. D. G. Crawford.
27 Smith's Operation of Extraction of the Cataractous Lens in its Capsule. G. T. Birdwood.
28 Treatment of Stricture of the Urethra. J. R. Roberts.
29 Extraordinary Series of Outbreaks of Plague in Cape Colony. E. N. Thornton.
30 Operation for Varicose Veins as Performed in America. C. Duer.

British Journal of Children's Diseases, London

January

31 Modern Methods of Infant Feeding. N. P. Marsh.
32 *Neurofibromatosis of the Tongue in a Child, With the Classification of Incomplete and Anomalous Cases of V. Recklinghausen's Disease. F. P. Weber.
33 Carious Teeth in Elementary School Children. F. E. Larkins.

32. **Neurofibromatosis of the Tongue.**—The patient, a rather delicate-looking boy, aged 6 years, had a hard swelling below the tongue, which, according to the mother, had been almost certainly observed when the child was ten months old. The tumor in question formed an oval projection (about 5 and 10 mm. in breadth and length respectively) on the under surface of the tongue, situated along the right side of, and parallel to, the frænum linguæ, about half way between the tip of the tongue and the orifices of Wharton's ducts. The surface of the projecting tumor, which was apparently covered by healthy mucous membrane, was partly whitish and partly reddish in color. No evidence of disease in the thoracic or abdominal viscera could be detected, and the general health of the boy appeared satisfactory in spite of his somewhat delicate appearance. The projecting portion of the tumor was removed, and on examination showed bundles of medullated nerve fibers bound together by a close connective-tissue stroma. Weber regards the tumor as being neurofibromatous, and a hard cord still remains to the right of the boy's frænum linguæ, doubtless representing part of the lingual branch of the fifth cranial nerve.

Journal of Laryngology, Rhinology and Otology, London

January

34 Latent Infections of the Diphtheria Bacillus. P. W. Williams.

Glasgow Medical Journal

February

35 *Three Specimens Illustrative of Gangrenous Hernia. H. Rutherfurd.
36 *Natural and Unnatural Feeding of the Infant. L. Findlay.
37 Puerperal Eclampsia. D. D. Logan.

35. **Gangrenous Hernia.**—Rutherford reports the following cases: (1) Richter's right femoral hernia in a single woman, aged 30; (2) right inguinal hernia in a man, aged 44; (3) right obturator hernia in a woman, aged 59.

36. **Feeding of the Infant.**—Findlay shows that we do not as yet fully understand the secret of the beneficial effect of human milk, except that it contains some essential and probably organic substance, of the nature of which, however, we are entirely ignorant, nor can we explain why some children on artificial nourishment do well and others do not. At any rate, he says, we do know enough to see how erroneous it is to speak of humanizing cow's milk, and of this or that milk mixture or food being a proper substitute for the natural food of the infant. It behooves us, therefore, to insist on breast feeding in every instance, and to take all the means that lie within our power to encourage and enable the mother to perform this natural and most necessary duty.

Presse Médicale, Paris

January 22, XVIII, No. 7, pp. 49-56

38 Syndrome of Insufficiency of Left Ventricle. (Syndrome d'insuffisance ventriculaire gauche.) C. Lian.
39 Acute and Chronic Serous Anemia. M. Perrin.

January 26, No. 8, pp. 57-64

40 Acute Inflammation of the Cerebral Ependyma in a Four-Months-Old Infant. (Ependymite cérébrale algue chez l'enfant.) P. Merle and R. J. Weissenbach.

January 29, No. 9, pp. 65-80

41 Administration of Sodium Nucleinate to Induce Therapeutic Hyperleucocytosis in Mental Disease. (Le nucléinate de soude et la leucothérapie en thérapeutique mentale.) J. Lépine.
42 Active and Passive Exercises for the Elbow. (Gymnastique du coude.) P. Desfosses and L. Durey.
43 *Promotion of Diuresis to Eliminate Anesthetic, etc. (Sur les injections de solutions isotoniques de chlorure de calcium ou de serums fortement calciques, de solutions isotoniques ou hypertoniques de sucres et sur l'ingestion ou les lavements d'eau abondants, avant et après l'anesthésie chirurgicale.) G. Fleig.

43. **Promotion of Diuresis to Eliminate Anesthetic.**—Fleig emphasizes the importance of promoting elimination of the anesthetic by ensuring ample diuresis, and also of counteracting hemorrhage by rendering the blood more readily coagulable. He reports research which demonstrates that the heart action can be reenforced, the blood pressure increased and coagulation promoted by preventive injection before the operation of an isotonic solution of calcium chlorid or artificial serum containing lime, with or without admixture of blood serum. He shows also that elimination of the anesthetic is promoted and the period of its contact with the tissues shortened by subcutaneous, intramuscular or intravenous injections of a solution of glucose or levulose. Copious diuresis is induced by these injections, which wash out the anesthetic and attenuate its secondary toxic effects while they have, besides, a tonic action on the cardiovascular system, combating reduction of blood pressure and collapse. The sugar solution has also a certain nourishing action. The sugar and calcium chlorid may both be combined in a single solution. He urges the more general adoption of such measures, especially with chloroform anesthesia, and when there is reason to dread an injurious action on the heart. He warns, however, that the calcium chlorid or blood serum should never be used in cases in which there is the slightest ground for fearing embolism from thrombosis. With the sugar solutions, when the aim is merely lavage of the blood, without desire to draw fluid from the tissues, an isotonic or paraisotonic solution should be used. This rinses out the blood. But when the aim is to wash out the tissues, in urgent cases requiring prompt diuresis and dehydration of the tissues, a hypertonic solution should be given the preference. Animals seem to wake in much less time after chloroform anesthesia followed by injection of a 25 per cent. solution of glucose. In one dog diuresis became copious in ten minutes after injection of 440 c.c., and continued thus for 20 minutes, after which the dog roused, while the same animal three weeks before did not rouse for an hour and a half after administration of the same amount of chloroform. Jeanbrau has reported the cure of anuria from calculi in 2 cases by intravenous injection of a hypertonic solution of saccharose. Fleig found that normal individuals and patients with oliguria or anuria in acute infectious diseases, especially typhoid, responded with extremely copious diuresis to intravenous injection of a hypertonic 25 or 30 per cent. solution of lactose, glucose or mannite, in doses ranging up 1,100 c.c. in the 24 hours. Sometimes 4 liters of fluid were voided in the following 24 hours and there was no consecutive oliguria when the patients drank freely after the abundant diuresis. He states that the injections can be repeated, preferably on alternate days, without fear of the slightest toxic phenomena. The antitoxic action of the sugar solution is proportional to its lesser molecular weight, that is, proportional to its diuretic action, this being in inverse ratio to the molecular weight. Hypertonic sugar solutions ingested by the mouth do not seem to have the slightest diuretic action, and diuresis is less with isotonic solutions ingested by the mouth than when pure water is taken. The greatest diuretic effect is obtained, he declares, by drinking large amounts of water supplemented by intravenous injection of a hypertonic sugar solution.

Archiv für Gynaekologie, Berlin

XC, No. 1, pp. 1-312. Last indexed Feb. 5, p. 500

44 *Interference of Soft Parts with Delivery; Hysterotomy. (Ueber Weichtheilschwierigkeiten, ihr Einfluss auf die Kindersterblichkeit unter der Geburt und ihre Behandlung, insbes. mit der vaginalen Hysterotomie.) L. Seitz.
45 *Tuberculosis of the Placenta. H. Schlimpert.
46 *Closure of the Blood Vessels after Delivery. (Gefässverschluss post partum.) O. Frankl and L. Stolper.
47 *Importance of Momburg's Belt Tourniquet in Obstetrics. (Bedeutung der Momburg'schen Blutleere in der Geburtshülfe.) F. Engelmann.
48 Corpus Luteum Abscesses. E. Kehrer.
49 *Experimental Research on the Nervous Reflexes from Various Organs and the Peripheral Nerves Acting on the Uterus. Id.

44. **Reduction of Infant Mortality at Birth.**—This is a more elaborate presentation of data summarized in THE JOURNAL, page 750. Seitz' statistics show that of the 50,000 infants who die during birth in Germany each year, obstruction by the soft parts is responsible for the deaths in 16,000 cases; 10,000 are macerated and 3,000 not viable out of the total 63,000 infants born dead. For two-thirds of the fatalities with the viable children, however, obstruction by the soft parts is responsible, and he makes an urgent plea for prompt vaginal hysterotomy, incising also the vagina if necessary. He has thus treated 70 patients, and the outcome, he asserts, left nothing to be desired. Vaginal hysterotomy, he declares, is a harmless and efficient operation, and he considers it another argument in favor of institutional rather than home deliveries.

45. **Signs of Tuberculosis in the Placenta.**—Schlimpert reports positive histologic findings in the placenta in 6 out of 7 cases, the tuberculous mothers living at the time of the childbirth, and also 4 other cases in which the tuberculous pregnant women died undelivered. The children in all the cases died soon after birth, but no macroscopic signs of tuberculosis could be detected in them. Tubercle bacilli were found in the smears from the placenta in only 2 instances.

46. **Closure of the Vessels Postpartum.**—Frankl discusses the remarkable way in which the bleeding stops spontaneously after normal childbirth, although the vessels are widely gaping and even their spontaneous contraction, supplemented by the contractions of the uterine musculature, is not enough to explain this arrest of bleeding from them. Nothing analogous is observed in any other organ, and he ascribes it to a development of decidual elements in the vessel walls, which he found constantly after the fourth month of the pregnancy in 19 uteri examined for the purpose. These cells project into the lumen and close it like a valve when spontaneous retraction occurs after delivery. The article is illustrated.

47. **The Momburg Belt Tourniquet in Obstetrics.**—Engelmann gives the details of a case in which a primipara of 38 with placenta prævia and hydramnios had lost so much blood that the application of the Momburg belt was not followed as usual by contraction of the uterus, which had been so distended that the atrophied walls no longer responded to any stimulus. The belt arrested the hemorrhage, but whenever it was removed the patient collapsed. Notwithstanding pressure from the breech of the fetus, the hemorrhage continued behind it. The outcome would have been better probably if the belt had been applied earlier. Autopsy disclosed no evidences of injury from the belt, although it had been applied for about an hour and three-quarters in all, with several brief intermissions. The method certainly answers the purpose, he says, of arresting obstetric hemorrhage in every case, at least for the time being.

49. **Experimental Research on Reflex Movements of the Uterus.**—The research was done on cats and rabbits mostly after the cerebrum had been excluded by severing the pons from the nervous system below. This transforms the animal into a reflex machine, responding to the most delicate stimuli. The movements of the uterus were recorded on a rotating drum, the animals being under ether and artificial respiration. A reflex action on the uterus was evident on stimulation of any of the sensory nerves of the boly, not only the spinal nerves, but also the sensory fibers of the sympathetic. It was noticeable, however, that the reflex movements induced by irritation of the skin, mucosæ, nose and breasts were comparatively slight and transient in comparison with the far stronger and more persisting reflex action between the gastrointestinal tract and the uterus and, in a lesser degree, between the bladder and the uterus. Among the numerous points of practical importance learned in this research is that distention of the stomach or intestines seems to inhibit the reflex movements of the uterus; this harmonizes with the old saying that a full stomach prolongs labor. On the other hand, the physiologic stimuli from food in the digestive tract, small amounts of a solution of sugar or albumin, milk, and the natural digestive secretions all have a powerful action in promoting the contractions of the uterus. The remarkably powerful action on the uterus movements of peptone taken by the mouth Kehrer regards as partly a reflex process from the digestive tract and partly as the result of absorption of the peptone into the blood. He found that a solution of peptone injected intravenously acted like ergot and as powerfully. The research suggests, he says, that it may be possible to promote labor contractions by administration of small amounts of the above articles of food; too much arrests the uterine contractions.

Archiv für klinische Chirurgie, Berlin

XCI, No. 3, pp. 543-801. Last indexed Jan. 22, p. 328

50 Mesenteric Cystic Tumor from Retention of Chyle. (Chylus-cysten.) R. Hinz.
51 *Action of Thyroid Extract on Normal Bone Growth. (Zur Wirkung der Thyreoidintabletten auf das normale Knochenwachsthum.) E. Bircher.
52 *Clinical Experience with Surgery of Blood Vessels. (Klinische Beiträge zur Gefässchirurgie.) Krüger.
53 *Bleeding into a Goiter. (Kropfblutungen.) F. Brüning.
54 *Pathology and Therapy of Prolapse of the Rectum. (Mastdarmvorfall.) N. Beresnegowsky.
55 Pathogenesis of Round Gastric Ulcer. (Experimenteller Beitrag zur Pathogenese des Ulcus rotundum des Magens.) G. Zironi.
56 Isolated Disattachment of Lesser Trochanter. (Abrissfractur des Trochanter minor.) C. Pochhammer.
57 Familial Cystic Kidney; Recovery after Nephrectomy. (Inficirte Cystenniere; Nephrektomie; Heilung.) P. Bull.
58 *Artificial and Traumatic Inguinal Hernia. (Die künstlichen und traumatischen Leistenbrüche.) A. P. Krymow.
59 Epidermoids and Skiascopy. M. Krüger.

51. **Influence of Thyroid Tablets on Growth of Bones.**—Bircher's tests were made on young rats and the animals all showed arrested growth under the influence of the thyroid treatment in comparison with the controls of the same litter. The thyroid tablets seem to check the development of the epiphyses and induce emaciation.

52. **Surgery of the Vessels.**—Krüger reports 48 cases of injury of some large artery or vein with operative treatment in a number and discusses the lessons learned from this material. In 15 cases he was able to determine the ultimate outcome after ligation for aneurism or trauma of a vessel. Only 5 of the patients are entirely free from disturbances at present; the others show signs of insufficient collateral circulation.

53. **Hemorrhage into a Goiter.**—Brüning reports a case and summarizes 6 others from the literature. The indications for operative intervention are similar to those with acute appendicitis; immediate intervention in case of vital necessity, otherwise expectancy, knife in hand, operating when the threatening symptoms have subsided.

54. **Treatment of Prolapse of the Rectum.**—Beresnegowsky has been studying on the cadaver the factors which predispose to prolapse of the rectum and its mode of development. The data thus learned suggest a technic for effectual operative treatment, especially by strengthening the pelvic floor. He takes a pedunculated flap from the gluteus maximus muscle without disturbing the sphincter, working through an incision on each side of the anus, forming an acute angle with it. The aim is to reinforce the perineum by inserting a layer of staunch tissue which will support it. He gives an illustrated description of a case in which this technic was successfully applied.

58. **Artificial and Traumatic Inguinal Hernia.**—By artificial hernia Krymow means that voluntarily induced by young Russians to render themselves unfit for compulsory military service. He discusses the anatomic conditions and differentiation of artificial and traumatic hernia, with illustrated details of 5 cases, including 3 artificial and 2 traumatic hernias. The symptoms and lesions differ as the traumatism involved the parts above the inguinal ring or the ring itself.

Beiträge zur klinischen Chirurgie, Tübingen

January, LXV, No. 3, pp. 577-839

60 Amyloid Tumors in the Trachea. A. Reich.
61 Pathologic (Spontaneous) Central Dislocation of the Hip Joint. K. Henschen.
62 Unusual Cause for Incarceration of Hernia. (Eine ungewöhnliche Ursache der Brucheinklemmung.) K. Blauel.
63 Contusion of Bladder and Rupture of Urethra. (Cirkuläre Ruptur der Urethra und Abreissung der Blase von der Symphyse nach seitlicher Kompression des Beckens ohne nachweisbare Verletzung des knochernen Beckens.) R. Stierlin.
64 *Menacing Hemorrhage in Stomach and Intestine. (Ueber lebensbedrohliche Magen- und Duodenalblutungen.) H. Finsterer.
66 Malformation of the Acetabulum. (Beitrag zur Enstehungsgeschichte des Otto-Chrobak'schen Beckens.) K. Henschen.
65 *Action of Radium on Malignant Tumors. A. Caan.

64. **Gastrointestinal Hemorrhage.**—Finsterer has compiled the cases from the literature since Borszeky's collection in 1906 of 78 cases of operative treatment of gastric hemorrhage with 38.4 mortality. He also reports a personal case in which uncontrollable gastric hemorrhage compelled intervention. Three gaping arteries with clots in them were found and sutured with silk, and the inferior coronary artery of the stomach was ligated to the right and left of the anastomosis. There was no further bleeding, but recovery was delayed by suppurative pleurisy requiring resection of the eighth rib and drainage, but the patient was dismissed cured after six weeks. The bleeding vessels were in a callous ulcer; gastroenterostomy had been done four years before on account of

gastric disturbances. It is a fair estimate, he thinks, that these severe gastric hemorrhages in the cases reported would have given a mortality of fully 70 per cent., while with operative intervention this was reduced to 14 per cent. The fatality in most of the operative cases was due to the intense anemia without recurrence of hemorrhage; consequently, operative intervention should not be delayed until the patient is dangerously exsanguinated.

65. **Action of Radium on Cancers.**—Caan writes from Czerny's cancer research institute at Heidelberg to describe the results of application of radium and radioactive preparations in 130 cases. In 50 per cent. a favorable influence was unmistakable; the tumors softened and shrivelled, while the subjective symptoms subsided. The influence was most marked on malignant lymphomas.

Berliner klinische Wochenschrift

January 17, XLVI, No. 3, pp. 89-132

67 *Flatulence and its Treatment. I. Boas.
68 *Tests of Pancreas Functioning. J. Wohlgemuth.
69 Clinical Determination of Diabetic Acidosis. H. C. Geelmuyden.
70 Diagnostic Importance of Tendon and Skin Reflexes in Uremia. (Diagnostische Bedeutung der Sehnen- und Hautreflexe bei Urämie.) H. Fette.
71 False Teeth in Prophylaxis of Cancer. (Trauma und Zahnprothese.) M. Hahn.

67. **Flatulency.**—Boas reiterates his plea for regulation of bowel functioning by the diet alone, a procedure which he regards as almost invariably all-sufficient unless there is organic obstruction. He urges the importance of distinguishing between flatulence from different causes, as different treatment is required. Analysis of the causes is the only guide to correct treatment. The swallowing of air during eating, especially rapid eating, in nervous individuals is the most frequent cause of exogenous flatulence. Colic is seldom observed when there is no obstruction to the passage of feces in this form of flatulence. The flatus is comparatively odorless; this variety is obstinate and only to be cured by better habits of eating and by systematic toning up of the nervous system. Drugs to combat the flatulency are useless. The indications are different with flatulence of alimentary origin, especially when there is chronic constipation or intestinal catarrh. The diet should be regulated to exclude gas-forming substances, and among these he places milk; there are many persons who react to milk and buttermilk with violent and painful flatulence. Eggs and dishes containing eggs frequently induce great production of gas, especially in winter when it is difficult to obtain fresh eggs; persons inclined to intestinal catarrh or habitual constipation and flatulency should be very cautious in the use of eggs. Of still greater importance in this respect is the blood content of meat; nothing is so subject to offensive putrid composition, he says, as blood. He consequently recommends entire avoidance of roast or broiled beef and mutton, and thorough cooking of all meats and avoidance of all raw or rare foods. In individual cases potatoes may maintain fermentation dyspepsia. The tolerance of the patients for various foods must be tested; sugar, dextrinated flours, wheat bread and rice may be well tolerated. The only drug which he has found effectual against flatulence and gastrointestinal fermentation in general is magnesium salicylate, in doses of 1 or 2 gm. (15 to 30 grains) three times a day; it seems to have a marked influence in preventing putrid gaseous fermentations while free from the usual by-effects of other salicylic preparations, and it is not constipating. It is serviceable only in alimentary or intestinal putrefactive processes. In case of organic changes favoring flatulence, purgatives are necessary, and for this he prefers castor oil in small repeated doses. When the flatulence is the result of congestion with heart disease, heart tonics may be useful.

68. **Tests of Pancreas Functioning.**—Wohlgemuth remarks that none of the present tests in vogue is really reliable, but that his experimental research and clinical experience seem to be demonstrating that the proportion of diastase in the urine and feces is very much increased in case of obstruction of the outlet of the pancreas. Determination of the proportion of diastase in urine and feces, after a test diet for two days, gives most instructive information in regard to pancreatic functioning. He gives the details of the technic which he has found most effectual for the purpose.

Deutsche medizinische Wochenschrift, Berlin

January 27, XXXVI, No. 4, pp. 153-206

72 Acute Fatty Degeneration of the Liver after Resection of One Lobe. (Akute Leberverfettung nach Resektion eines Leberlappens.) Rinne.
73 *Unpedunculated Flaps to Insure Healing of Sutures. (Ueber die Verlötung unsicherer Nahtlinien durch freie Autoplastik.) F. König.
74 *Appendicitis and Incarceration of Appendix in Hernia. (Die Entzündung und die Einklemmung des Wurmfortsatzes im Bruchsacke.) J. Thon.
75 *Diagnostic Importance of Seroreaction in Tuberculosis with Special Regard to the Cobra Venom Reaction. S. Pekanovich.
76 Modified Technic for Serodiagnosis of Syphilis. (Die Serodiagnose der Lues mittels Ausflockung durch glykocholsaures Natrium.) F. Rosenfeld and Tannhauser.
77 Diagnostic Importance of Seroreaction in Syphilis. (Bewertung der Wassermannschen Reaktion.) Dreuw.
78 Treatment of Chronic Cardiospasm. H. Elsner.
79 Weakness of Ocular Muscles and its Treatment. (Muskuläre Augenschwäche und ihre Behandlung.) E. A. Heimann.
80 Treatment of Lymphatic Scrofulous Eye Disease. (Zur Behandlung der lymphatischskrofulösen Augenkrankheiten.) J. Eisenstein.
81 Traumatic Origin of Abscess in Nasal Septum. (Nasenscheidewandabszess.) Andereya.
82 Therapeutic Antihemolytic Action of Cholesterin. (Theoretische Betrachtungen über Cholestearin bei Schwarzwasserfieber als Heilmittel, mit praktischem Versuch.) Grimm.

73. **Strengthening Sutures by Autoplastic Flaps.**—König refers especially to suture of the abdominal wall after radical treatment of hernia and also suture of wounds in mucosa. By covering the line of suture with a broad piece of flexible tissue, the wound is soldered together, as it were, and the suture gains materially in strength. The flap used may be of periosteum, fascia tissue or the wall of a vessel. In two cases he used a piece cut from the aponeurosis of the rectus abdominalis to reinforce a suture of the bladder wall; the square flap extended for from 0.5 to 1 cm. beyond the wound and was fastened with silk all around. The defect in the aponeurosis and the incision in the skin above were also sutured with silk. He thus reenforced a suture after closing a defect in the urethra left from a rodent chancre. The flap used in this case was taken from the saphenous vein which he slit for the purpose. The vein flap healed promptly in place and the operation was successful. He suggests the possibility of thus soldering a suture in the dura after removal of a brain tumor, using a flap of periosteum or fascia. The latter tissue is particularly useful, as it can be obtained usually near at hand. Autopsy in some cases after an operation of this kind showed that the auto-flap had healed perfectly in place. Bone is less adapted for this procedure, as it does not fit so well to the tissues beneath.

74. **The Appendix in Hernia.**—Thon reviews the literature on this subject, and states that there were no fatalities in his own experience with 8 cases of appendicitis in the hernial sac, even although the appendix was strangulated in 5 cases.

75. **Serodiagnosis of Tuberculosis.**—Pekanovich obtained positive responses in from 87 to 90 per cent. of 62 patients with pulmonary tuberculosis tested with the cobra venom hemolytic test according to Calmette's technic. At the same time he obtained a positive reaction also in 27.8 per cent. of 38 patients apparently entirely free from tuberculosis.

Fortschritte der Medizin, Leipsic

January 20, XXVIII, No. 3, pp. 65-96

83 Treatment of Pertussis. (Behandlung des Keuchhustens.) R. Fischl.

Medizinische Klinik, Berlin

January 23, VI, No. 4, pp. 127-166

84 *Local Treatment of Recent Puerperal Infection. G. Winter.
85 Nervous Disturbances of Internal Organs. (Nervöse Störungen der inneren Organe.) E. Magnus-Alsleben. Commenced in No. 3.
86 Interaction of Organs with Internal Secretion. (Wechselwirkung der Organe mit innerer Sekretion.) Caro.
87 *Tabes Dorsalis in Boy of 13. (Beitrag zur infantilen Tabes.) W. Spitzmüller.
88 Apparent Cure of Diabetes in Girl Under 10. Hürter.
89 Mouse Favus in Human Beings. (Vorkommen von Mäusefavus beim Menschen.) R. Chajes.
90 Simplification of Roentgenography. (Aufnahmen von Radiogrammen auf Bromsilberpapier ohne Verstärkungsschirm.) F. Kronecker.
91 Angiomatous Nevi at the Back of the Neck. (Naevi angiomatosi in der Hinterhauptsnackengegend.) E. Saalfeld.
92 Points to be Borne in Mind in Operative Treatment of Recurring Eczematous Lesions of Cornea. (Zur operativen Behandlung der rezidivierenden ekzematösen Hornhauterkrankungen.) Neubann.
93 Experiments with Parabiosis. G. M. Cristea and W. Denk.

84. **Local Treatment of Recent Puerperal Infection.**—Winter is inclined to be conservative, as he is convinced that Nature can be relied on in many cases to conquer the local uterine infection. Analysis of 422 febrile cases during the last seven years has shown that in only 4 cases was there a possibility that the general severe infection had developed secondarily to a direct primary infection in the uterus. Others' statistics show the same; the possibility of secondary infection is excluded in all but in 1 or 2 per cent. of the febrile cases. In all the others the infectious process in the uterine cavity remained localized; there is no reason for local treatment of such a process to prevent its spreading to general infection. Only when there is retention of secretions or long protracted endometritis does he regard local measures as justified, and they should always be mild. His experience has shown further that retention of a fragment of placenta is not necessarily followed by general infection. In 55 cases of fatal general infection a fragment of placenta was found in the uterus in 6 cases, but in 4 of these the uterus wall behind the piece of placenta was found sterile. In only 2 was there evidence that the infection might have occurred by this means, and in both these cases there had been fever before delivery. His rule is to remove the retained fragments of placenta at once—always with the finger—when there is no tendency to fever or local decomposition. In case of much hemorrhage, the fragment must be removed at once, even if there is local infection. The danger of fatal hemorrhage is more threatening than that of general infection. If there is no hemorrhage and the general condition is not bad, the removal of the fragment can be postponed for several days, and spontaneous expulsion promoted by energetic ergot medication. If the retention is accompanied by intrauterine infectious conditions, peritonitis, venous thrombosis or a tumor in the adnexa, no attempt should be made to remove the fragment unless compelled by severe hemorrhage. On the one hand, the importance of the local process is overshadowed by the intrauterine infection and, on the other hand, the manipulations on the uterus may aggravate the latter. Before attempting to remove the fragment, in case of existing local infection, the uterus should be cautiously rinsed out, continuing the irrigation for a long time; the curette should never be used. After the fragment has been detached with the finger, the irrigation should be resumed; this clears out the uterus from its secretions and washes away the germs that might otherwise settle on the site of the placenta. Ergot should be given to prevent absorption and further migration of germs.

87. **Tabes Dorsalis in Children.**—The patient in the case reported was a boy of 13 with no history of syphilis in the family and yet the boy's serum gave a positive Wassermann reaction. Marburg compiled 51 cases of tabes in children on record to 1908, and Spitzmüller has found a few more. Ataxia is the most prominent symptom in his case, but Marburg found it only in 56 per cent. of his cases. In this case as in a number on record, suddenly developing enuresis at the age of 9 was the first symptom of the tabes to attract attention.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXI, No. 1, pp. 1-180. Last indexed Jan. 1, p. 87

94 Appendicitis, and Vascularization of Segments of Appendix. (Das Segmentäre bei der Wurmfortsatzentzündung.) W. Brunn.
95 *Meat-Eating Responsible for Appendicitis. (Zur Aetiologie der Appendicitis.) MacLean.
96 *Limits for Extensive Resection of the Small Intestine. (Ueber die obere Grenze für die Zulässigkeit ausgedehnter Dünndarmresektionen.) G. Axhausen.
97 Clinical Experience with Opsonin Research. (Klinischer Beitrag zu Wrights Lehre von den Opsoninen.) E. Schmidt.
98 *Origin of Perforating Ulcer of the Foot. (Entstehung des Mal perforant du pied.) R. Levy.
99 Progressive Retracting Dystrophy of Certain Muscles. (Myopathologische Beiträge.) H. Steinert.
100 Sensibility of the Abdominal Organs. (Kritische Bemerkungen zu einigen neueren Arbeiten über die Sensibilität der Bauchorgane.) G. Nystrom.
101 *Autodigestion of Intestine Implanted in the Stomach. (Selbstverdauung des Darmes im Magen.) G. Hotz.
102 Syndrome Resembling Bulbar Paralysis after Firearm Wound. (Fall von Pseudobulbärparalyse durch Schussverletzung.) R. Sievers.
103 *Operative Treatment of Gastric Crises in Tabes Dorsalis. (Operative Behandlung gastrischer Krisen: Foerstersche Operation.) O. Bruns and F. Sauerbruch.

95. **Meat-Eating and Appendicitis.**—MacLean found in the course of several years' practice in an Asiatic town that the Europeans were the only ones who had appendicitis. He states that helminths were present in every Chinese cadaver he had occasion to examine, sometimes in enormous numbers, but appendicitis never occurred among them. Excluding all other causes, he thinks appendicitis must be due to the difference in the diet between the European and Chinese and primitive races; the immoderate use of meat must be responsible, he says, for this child of European civilization.

96. **Limits for Extensive Resection of the Small Intestine.**—Axhausen tabulates the details of 12 cases in which from 300 to 540 cm. of small intestine was resected, including a case from his own experience. His patient was a young woman with volvulus of the small intestine with beginning gangrene and he resected 475 cm. leaving only 125 cm. of the small intestine. The case is especially interesting as he gives the metabolic findings for a time afterward. She had evidence of bilateral apical tuberculous processes at the time and the tuberculosis continued its course to a fatal ending six months after the operation. Notwithstanding the loss of 80 per cent. of the total amount of small intestine, there was no impairment of utilization of the carbohydrates ingested, but only about 64 per cent. of the fats and nitrogen was utilized and the ferments in the feces showed also the effect of the resection. At the same time, these changes were not sufficient to have seriously impaired the patient's health if conditions had been otherwise normal. He urges the determination of the length of the intestine left as important for estimating the length of justifiable resection; 80 per cent., as in his case, seems to be about the limit, although Denk's patient is now entirely healthy 18 months after resection of 540 cm., nearly 14 feet. The list includes Werelius' case reported in THE JOURNAL, March 16, 1907, page 945, in which 12 feet and 2 inches was resected.

98. **Perforating Ulcer of the Foot.**—Levy reports 13 cases, the findings sustaining his assertion that changes in the bone are the primary process, the perforating ulcer following secondarily. Treatment should always be directed against the primary bone lesion, and in every case of perforating ulcer Roentgen examination for the underlying joint affection, synovial secretion or spontaneous fracture should never be omitted. He calls attention to the fact that joint lesions and spontaneous fractures are comparatively frequent complications in syringomyelia and tabes.

101. **Autodigestion of Intestine Loop Implanted into the Stomach.**—Hotz tells of his research on dogs, implanting a loop of intestine in the wall of the stomach. There was no destructive action on the implanted intestine if the blood supply was not disturbed but inflammatory processes developed whenever there was a defect in substance.

103. **Operative Treatment of Gastric Crises in Tabes.**—THE JOURNAL, Aug. 7, 1909, page 492, mentioned Foerster's case in which resection of the posterior spinal nerve roots cured at one stroke unbearable gastric crises. The sensory hyperexcitability seems to be the main factor in these crises, and the other symptoms, the excessive motility and secretion, are secondary. By interrupting the sensory routes the pains cease. The sensory tracts for the stomach probably pass from the sympathetic into the posterior roots, especially the seventh to the tenth posterior dorsal roots. These were resected in the case reported, in two sittings, and the patient was freed from his pain and gained four pounds a week. Bruns reports another case in which he followed this same technic. The patient was a man of 40, the gastric crises commencing 9 years before in a mild form, increasing in intensity until during the last year he had been entirely helpless, with no relief from the usual measures; he had lost 58 pounds in the last two years. Sometimes the pain extended from the stomach to the small intestine, and in two crises lumps of feces were vomited. He had not been free from pain in the stomach at any time during the last year. The seventh, eighth and ninth posterior roots were severed, both right and left, every trace of blood removed and the dura sutured with fine silk, the muscles with catgut. The patient was freed completely from his pains, the results confirming in every respect Foerster's assumptions as to the causes of the gastric crises and the indications for operative treatment. The operation is

indicated only in the severest forms as it is a serious intervention and there are liable to be nutritional disturbances in the tissues interfering with healing. In Bruns' case there were superficial aseptic necrosis of the skin and furunculosis of the back afterward, all of which healed without much delay. [Resection of the posterior spinal nerve roots in treatment of spastic paralysis was recently discussed in an editorial, Jan. 15, 1910, p. 210.]

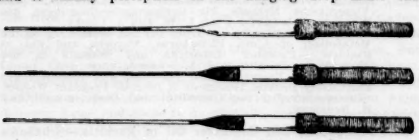
Münchener medizinische Wochenschrift

January 25, LVII, No. 4, pp. 169-224

104 *Experiences with Momburg's Belt Tourniquet. (Zur Blutleere der unteren Körperhälfte nach Momburg.) zur Verth.
105 Acute Poliomyelitis. R. Beneke.
106 *Technic for Early Test in Typhoid. (Neue einfache Methode zur Typhusdiagnose.) M. Mandelbaum.
107 *Changes in Drop-Forming Property in Syphilitic Blood Serum: Meiostagmin Reaction. (Spezifische Eigenschaft luetischer Blutsera.) G. Izar.
108 Structure of Sinus Node. (Ueber den Aufbau des Sinusknotens und seine Verbindung mit der Cava superior und den Wenckebachschen Bundeln.) C. Thorel.
109 Therapeutic Utilization of Destructive Action on Morbid Tissue of Crystals of Potassium Permanganate. J. Finck.
110 Explosion of Ether Fumes during Roentgen Examination in Course of Ether Anesthesia. (Kontraindikation der Aethernarkose bei Röntgenaufnahmen.) H. Krukenberg.
111 Present Status of Psychotherapy. L. Loewenfeld. Commenced in No. 3.

104. The Momburg Belt Tourniquet.—This communication from Bier's clinic at Berlin asserts that Momburg's technic has solved the problem of shutting off half of the body from the circulation without injury, comparatively speaking. The experiments on rabbits reported by zur Verth show that the animal becomes anesthetized in a third of the time required for the control. The ureters and nerves lie in sheltered regions so that they do not feel the effect of the constriction materially. Autopsy in 1 of the 20 cases in his experience showed that the temporary constriction of the mesentery causes no serious disturbance as recuperation is prompt. Of greater importance is the effect on the pulse and blood pressure, as he shows by several curves. His findings in this respect suggest that it is better not to raise the pelvis before applying constriction to the waist, but there is great advantage in applying Esmarch bandages to both thighs, according to Momburg's technic. The Katzenstein test is of great importance and also the use of a pulse-controlling apparatus to show when the femoral pulse is completely arrested. Persons with heart disease approximate the conditions in children, but in parturients the conditions are more favorable for the Momburg technic; the growing uterus has pushed the root of the mesentery up out of the way.

106. Rapid Method for Early Differentiation of Typhoid.—Mandelbaum states that typhoid bacilli string out into long chains or the chains coil into a snarl when typhoid serum is added to a culture of the bacilli. This reaction seems to be specific as he never observed it with any serum except that from typhoid patients. The reaction occurs in 3 or 4 hours and is readily perceptible in the hanging drop under the



Figs. 1 to 3.—Pipette.

microscope by this time. This reaction may also occur long before the agglutination test gives positive findings. It also seems to occur with serum from persons with a history of typhoid in the past, although the reaction develops more slowly in this case. The reaction was also slow but pronounced in the case of a chronic typhoid bacillus carrier. Mandelbaum has worked out a simple technic for the test, aiming to adapt it for general use. From 5 to 8 c.c. of a solution of 2 gm. sodium citrate in 100 c.c. of ordinary bouillon is sterilized in a test-tube as usual, and then this sodium-citrate-bouillon tube is inoculated with a loop of a motile typhoid-bacillus-bouillon culture or a scrap from an agar culture of typhoid bacilli. The culture must not be recent, but capable of growing well when further cultivated. A drop of blood is then obtained from the patient, aspirated into a long tapering capillary pipette with rubber cap like a medicine dropper (Fig. 1). Then ten or fifteen times as much of the sodium citrate bouillon inoculated with the typhoid bacillus cultures is drawn up likewise into the pipette (Fig. 2). By releasing the pressure on the rubber cap, the fluid gradually rises to fill the lower third of the broader part of the pipette. The tapering tip is then fused and the pipette well shaken to mix the contents (Fig. 3). The pipette is then kept at a temperature of 37 C. (98.6 F.) for three or four hours. The sodium citrate addition is for the purpose of preventing coagulation, and after this interval the red corpuscles will be

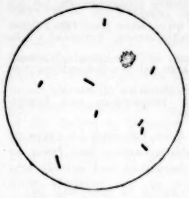


Fig. 4.—Negative reaction.

Fig. 5.—Positive reaction.

found collected on the bottom of the pipette, with a clear fluid above. The rubber cap is then taken off and a drop of the clear fluid is taken for examination as a hanging drop under the microscope. If the blood came from a person with typhoid the bacilli in the hanging drop will be adherent, as in Figure 5, while with non-typhoid serum the bacilli are scattered isolated through the fluid, as in Figure 4. Figure 5 represents a pronounced positive reaction. When the chains are found but with a few isolated bacilli between the chains and snarls, this reaction is typical of typhoid several years before. In the one chronic typhoid bacillus carrier he was able to examine, the reaction at the fourth hour was typical of a positive existing typhoid but then the picture gradually became modified so that by the end of the eighth hour the hanging drop resembled the findings with long past typhoid. There are thus three forms of the reaction, according to his experience, which, however, is not very extensive—only 12 cases of existing typhoid, 16 of long past typhoid and 1 typhoid bacillus carrier. The findings were constant in each class and were constantly negative in 75 other persons apparently free from a history of typhoid. The pipettes are those used in opsonin tests.

107. Modification in Size of Drops as Specific Sign of Syphilis, Typhoid, etc.—Ascoli calls attention to a specific test which he named the meiostagmin reaction. He measures the size of the drops with a stalagmometer and announces that the drop-forming property of various fluids becomes modified in certain pathologic conditions. Izar has applied the test to syphilitic serums and found that the addition of the syphilis antigen increased the number of drops in the test fluid while the serum of non-syphilitics had no such influence. He tabulates the findings in 12 cases of syphilis and 14 of non-syphilitics, using for the antigen an alcoholic extract of the spleen of a syphilitic fetus (0.5 gm. of pulverized spleen mixed with 50 c.c. of alcohol, incubated for two hours, filtered and evaporated to 10 c.c.) which was then diluted 1:100 parts with 0.85 per cent. salt solution. The blood serum was diluted 1 to 100 with the same salt solution. The number of drops formed by the diluted serum was determined before addition of the antigen. Then 1 c.c. of the diluted antigen was added to 9 c.c. of the diluted serum, and the whole kept at 37 C. (98.6 F.) during the two hour interval before the number of drops was again determined. There were always from 2 to 5 more drops in the fluid after addition of the antigen. In 2 cases the serum tested was received for examination labelled "Wassermann positive," but the meiostagmin reaction was negative. Investigation revealed that the serum in these cases was from patients with leprosy; here the meiostagmin reaction seems to be more exclusive and specific. Ascoli's communication related

principally to the meiostagmin reaction in typhoid. Admixture of typhoid serum with an extract of typhoid bacilli increases the number of drops which the fluid is able to form. The term he has coined for the reaction is from the Greek words signifying "smaller" and "drop." Positive specific reactions have also been obtained in tuberculosis, and experiments with cancer extract are now under way.

Therapeutische Monatshefte, Berlin

January, XXIV, No. 1, pp. 1-56

112 *Disturbances from Oxyuris Vermicularis and their Treatment, Especially in Adults. (Vorkommen und Behandlung von Erkrankungen an Oxyuris vermicularis, besonders bei Erwachsenen.) W. Zinn.
113 Swedish Exercises in Heart Disease. (Welche Stellung gebührt der mannellen schwedischen Heilgymnastik bei der Behandlung Herzkranker?) H. Adam.
114 *General Anesthesia with Part of Circulation Shut Off. (Ueber die Narkose bei künstlich verkleinertem Kreislauf.) R. Klapp.
115 Vibratory Massage in Treatment of Gynecologic Lesions. (Bedeutung der Vibrationsmassage bei der Behandlung von Frauenleiden.) W. Liepmann.
116 Diagnosis and Treatment of Sporotrichosis. B. Bloch.
117 Relations between Pharmacology, Immunology and Experimental Therapy. E. Friedberger.

112. **Pin-worms.**—Zinn states that he has had 14 cases of oxyuris in adults in which the disturbances had been so annoying that severe neurasthenia developed and suicide was contemplated in some cases. Two of the patients were women; among the others was an army officer of 32 in despair from the persistence of disturbances without relief from innumerable courses of treatment. Another patient was a lawyer, another a college student. Knowledge of the life history of the parasites is indispensable, he says, for successful treatment and prophylaxis. Recent research has shown that the eggs are deposited by the female only in the rectum or outside the anus. The only way in which they can hatch out in the gastrointestinal tract is by being taken into the mouth. The eggs hatch out in the stomach; the young pass on down into the small intestine where they reach sexual maturity; the adult worms are found most numerous in the cecum. The fertilized female migrates downward into the rectum where she deposits her eggs or passes on to deposit them around the anus outside. This migration of the parasites out of the intestine is particularly important as this is the source of the tormenting itching, especially soon after going to bed. Treatment should therefore aim to destroy the young in the small intestine by a vermifuge internally, washing out the adult parasites in the large intestine by high enemas, supplemented by scrupulous care to cleanse the hands before and after meals and after defecation to prevent ingestion of the eggs. He prefers to give the calomel and santonin between meals, commencing with 0.5 gm. (7.5 grains) each of calomel and jalap in powder at 3 p. m., with a warm soapsuds enema at 6 p. m. the first day. The next day he gives 0.05 gm. (0.75 grains) santonin and 0.1 gm. (1.5 grains) calomel at 8, 10 and 11:50 a. m., with two tablespoonfuls of castor oil at 2 p. m., and again at 4 p. m. The third day a full warm bath is taken and morning and afternoon a soap-suds enema; this is repeated the fourth and fifth days with a full bath at night. This completes the course, after which the body and bed linen should be changed. The dosage should be smaller for children. The food should be light and fluid and he prefers to give the course in an institution to facilitate microscopic control of the stools. With this simple course of treatment he has cured in less than a week a condition that had tormented the patients for years. Some expelled the first day 500 and 600 specimens of the oxyuris. He adds that it is important to have all the children in the family take the same treatment as otherwise reinfection is liable.

114. **General Anesthesia with Part of Circulation Cut Off.**—Klapp's experience with the application of constricting bands high on the thighs was described in these columns Dec. 4, 1909, page 1952. He is assistant at Bier's clinic, Berlin, and he declares that time is proving the value of this method of damming off part of the circulating blood. Far less of the anesthetic is required. He first applies a constricting band to collect a certain amount of blood in the legs and then over this applies a tourniquet to shut off the blood as effectually as with an Esmarch bandage. He orders the patient to breathe deeply and tranquilly; the room should be perfectly still. Then from 10 to 20 c.c. of ether is given all at once, which is enough for 15 minutes' anesthesia. For longer operations he gives from 20 to 30 c.c. at once and then 10 c.c., continuing with the drop method.

Wiener klinische Wochenschrift, Vienna

January 27, XXIII, No. 4, pp. 119-152

118 Dilatation of the Coronary Sinus in Mitral Stenosis. (Dilatation des Sinus coronarius cordis bei Stenose des linken Herzostiums.) H. Rollett.
119 Etiology of Herpetiform Dermatitis. (Hydroa aestivalis.) A. Perutz.
120 Alimentary Saccharosuria in Gastrointestinal Disturbances in Infants. (Alimentäre Saccharosurie bei darmkranken Säuglingen.) A. v. Reuss.
121 Kidney in Pelvis Interfering with Pregnancy. (Kongenitale Beckenniere und Gravidität.) J. Halban.
122 Unsatisfactory Experiences with Combined Mercury-Arsacetin-Quinin Treatment of Syphilis. O. Neugebauer.
123 *Treatment of Flaccid Paralysis Following Poliomyelitis. (Zur Behandlung der post-poliomyelitischen schlaffen Lähmungen.) A. Wittek.
124 Nature of Seroreaction in Syphilis. (Zum Wesen der Wassermannschen Reaktion.) R. Bauer and A. Hirsch.

123. **Treatment of Flaccid Paralysis After Poliomyelitis.**—Wittek reports several cases in which tendon transplantation gave excellent results, and he thinks that operations on the nerves are unnecessary. His aim is to shorten the muscles affected, and, by excision of a corresponding skin flap, restore the joints to normal position, striving to restore the normal interval between the points of attachment of the muscles The scar tissue will prevent over-stretching of the muscle The children are allowed to use the limb. If by the end of the year it is found that the paralysis still persists, then tendon transplantation may be indicated or, if the paralysis is too extensive, the joint is immobilized by arthrodesis. He emphasizes that it is of vital importance in poliomyelitic paralysis to prevent undue stretching of the injured muscle. This must be borne in mind and precautionary measures taken from the moment the subjective pain subsides. Even the weight of the bed-clothes must be avoided in case of paralysis of the dorsal flexor muscles. Abnormal attitudes of the parts must be prevented. Improvised supports or braces made of strips of adhesive plaster or roller bandages may render good service in this line. This is the more necessary when the children are allowed to get up. The weakened muscles must be relieved from the weight of the body, even from the weight of the limb involved, and protected against traction from the antagonist muscles. Some time should be allowed to elapse before active orthopedic intervention is considered. The tendency is to interfere actively too early and too radically.

Zeitschrift für klinische Medizin, Berlin

LXIX, Nos. 5-6, pp. 393-508. Last indexed Feb. 19, p. 662

125 Research on Metabolism in Addison's Disease. (Beitrag zu Stoffwechseluntersuchungen bei Morbus Addisonli.) R. Eiselt.
126 Determination of Conditions in Regard to Coagulation of the Blood. (Der Konguloviskosimeter.) K. Kottmann. (Die Vierordtsche Methode für Gerinnungsbestimmungen des Blutes in verbesserter Form.) Id. and A. Lidsky.
127 *Influence of Phosphorus, Cod Liver Oil and Sesame Oil on the Metabolism of Lime, Phosphorus, Nitrogen and Fat in Rachitis. (Phosphor, Lebertran und Sesamöl in der Therapie der Rachitis.) J. A. Schabad.
128 *Coincidence of Pregnancy and Diabetes, and Necessity for Exclusively Dietetic Treatment of Diabetic Pregnant Women. (Zusammentreffen von Gravidität und Diabetes mellitus.) H. Neumann.

127. **Phosphorus and Cod-Liver Oil in Rachitis.**—Schabad's research on the metabolism in rachitis has shown a favorable modification of the disease under the influence of cod-liver oil plus phosphorus. The proportion of lime retained is much larger under cod-liver oil; phosphorus alone has no such influence; but he found that phosphorus given with the cod-liver oil materially enhanced the action of the latter in this respect. He gives the phosphorus in a 1 per cent. solution in olive oil; three drops of the mixture represent 0.1 gm. oil and thus 1 mg. of phosphorus. The dose is one drop three times a day. Sesame oil failed to show any influence on the retention of lime and, consequently, cannot be used in place of cod-liver oil. The combination of the latter with phosphorus increases not only the amount of lime retained, but also the retention of phosphorus, while it promotes absorption of nitrogen and fats.

128. **Pregnancy and Diabetes.**—Neumann's experience and observation have demonstrated that the coincidence of pregnancy and diabetes is extremely rare and also that neither seems to have a specially harmful influence on the other. He advises examining the urine of every pregnant woman for sugar, even in the absence of symptoms. This is the only certain way to detect glycosuria in its incipiency. Dietetic measures should be rigorously enforced from the start until delivery, but the pregnancy should never be interrupted on account of the diabetes alone. Treatment should be exclusively dietetic. In 285 cases of fatal coma reported by four French or German clinicians, 36 of the patients were between 20 and 30, and 77 between 30 and 40, with 19 under the age of 10. Fatal coma during pregnancy occurs in a smaller proportion than the general average of coma in diabetes. On the other hand, from 20 to 25 per cent. of pregnant diabetic women develop tuberculosis. Neumann's experience with 6 cases was summarized recently in THE JOURNAL, January 8, page 166. Subjective symptoms were not complained of in any instance, but all the patients, even in the mild forms, were thin, languid and moody, and looked badly. The pregnancy and puerperium were normal and the children were all well developed and thriving, with the exception of one child, who weighed only 4 pounds; both parents were diabetic. Sugar was found for a few days in the urine of the infant of one mother with severe diabetes. The vital indication in treatment is to insist on a strict antidiabetic diet, interposing occasional days of fasting and of exclusive vegetable diet, commencing this at the earliest possible moment and keeping it up through the puerperium. The benefit was manifest in his experience—no fatalities and fine healthy children. No anesthetic should be given, and the woman should not get up for two weeks after delivery; reading and visits should also be discouraged. Women with an inherited or acquired diabetic taint should not nurse their children, as the diet generally taken by nursing women might rouse the dormant tendency, or aggravate existing diabetes.

Zentralblatt für Chirurgie, Leipsic

January 22, XXXVII, No. 4, pp. 113-152

129 Modified Technic for the Bardenheuer Method of Extension in Treatment of Fractures. (Zur Technik des Streckverbandes nach Bardenheuer.) Rücker.

Zentralblatt für Gynäkologie, Leipsic

January 29, XXXIV, No. 5, pp. 129-176

130 *Enlargement of the True Conjugate by Inducing Lordosis. (Unblutige Vergrösserung der Conjugata vera.) J. W. Tjeenk Willink.

131 Spontaneous Healing of Large Rupture of Uterus. (2 Fälle geheilter Uterusruptur.) M. Toblaszek.

132 Acknowledgement of American Priority in Operation for Retrouterine Fixation of Round Ligaments. (Zur retrouterinen Anheftung der Ligg. rotunda.) F. Franke.

130. **Enlargement of the True Conjugate by Position.**—This communication from Treub's clinic at Amsterdam states that it is possible to enlarge the true conjugate by inducing lordosis by the simple measure of placing the patient in the lithotomy position on the edge of the bed with a bolster under the edge of the mattress. This raises the lumbar region, inducing pronounced lordosis. He placed a parturient in this position to promote delivery of the child with version, but found that spontaneous delivery occurred almost at once. This occurred in several cases until his attention was attracted to this coincidence, and he now resorts to this position when delivery drags and there is no absolute disproportion between the skull and the pelvic inlet, while the labor contractions are strong and frequent. The true conjugate enlarges for about one-fourth of an inch or more by the lordosis thus induced, which often turns the scale for speedy delivery.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 23, XXXI, No. 10, pp. 97-112

133 *Vaginal Hysterectomy and Ruggi's Lateral Vaginal Incision. (Dell' isterectomia vaginale e del taglio latero-vaginale.) C. Orsoni.

134 *Autoplastic Amputation of the Breast. (Amputazione della mammella per cancro, col processo Tansini.) A. Albanese.

January 25, No. 11, pp. 113-120

135 *Action of Gland Extract on Experimental Tuberculosis. (Influenza che gli estratti di tessuto linfatico esercitano sulla evoluzione della tubercolosi sperimentale.) S. Livierato.

January 27, No. 12, pp. 121-128

136 Dysentery in Southeastern Austria. (La dissenteria nell' Istria e a Trieste.) M. Gioseffi.

133. **Vaginal Hysterectomy.**—Orsoni extols the advantages of Ruggi's technic for vaginal hysterectomy by an incision through the vaginal wall and vulva opening thus the entire anoperineal region, the incision stopping only about 3 cm. from the anus. Compression with the fingers at the posterior angle, the assistant exerting similar compression at the anterior angle, prevents hemorrhage. This laterovaginal incision permits ample access to the uterus and materially simplifies and facilitates its removal. This technic is indicated, he says, whenever there are extensive adhesions with cancer, etc. Asepsis during the operation and a retention catheter prevent infection of the wound, which soon heals, even the virgin hymen soon showing no traces of the intervention.

134. **The Tansini Method of Autoplastic Restoration After Removal of the Breast.**—Albanese gives the details of 4 cases with two illustrations to show the good results attained by Tansini's method of covering the defect after removal of the breast for cancer. The flap is cut from the back and includes part of the latissimus dorsi. It is readily twisted around under the axilla to cover the defect left in the pectoralis. The gap then resulting in the muscles of the back enables the lips of the defect to be more closely approximated. The flap is nourished abundantly by the anterior scapular artery; it healed in place by primary intention in 4 of Albanese's 5 patients, and with slight inflammation in the other case.

135. **Influence of Extract of Tuberculous Glands on Experimental Tuberculosis.**—Livierato's experiments seem to demonstrate that the extract of tuberculous or scrofulous glands has a decided preventive action when injected into animals before they are infected with tuberculosis. When the extract was given after the tuberculous infection was well established the course of the disease was materially attenuated. Extracts of normal glands displayed no such property.

Policlinico, Rome

January 30, XVII, No. 5, pp. 131-162

137 *"Proliferating" Pneumonia in Malaria. (Sulla pulmonite prolifera dello Schrön nella infezione malarica.) B. Alberti.

January, No. 1, Medical Section, pp. 1-48

138 Fate of Ingested Micro-organisms. (Studi ed indagini circa la sorte dei microrganismi ingeriti con i cibi e con le bevande, tenendo presenti le moderne vedute del Pawlow intorno alla digestione gastrica.) A. M. Collodi.

139 Physiopathology of the Ocular Tuberculin Reaction and its Importance for Diagnosis and Prognosis. (La fisiopatologia della reazione congiuntivale alla tubercolina. Deduzioni sul suo valore diagnostico e prognostico.) N. Pende.

January, Surgical Section, No. 1, pp. 1-48

140 Osteomyelitis and Removal of Scapula. (Della osteomielite e della estirpazione della scapola.) R. Caminiti.

141 Ovarian Endothelioma. P. Ligabue.

142 Angiectasia of the Arms. (Sulle angiectasie degli arti superiori.) G. Egidi.

137. **Malarial Pneumonia.**—The combination of pneumonia with malaria and of malaria with pneumonia is not rare in Italy, and Baccelli affirms that the malarial germ alone may induce inflammation of the lung simulating true pneumonia. Alberti here describes a special type of malarial inflammation of the lung distinguished by proliferation of the epithelial, periepithelial and perivascular elements. This "proliferating" pneumonia, as he calls it, has been observed during typhoid infection, but it is most common in malaria. Professor Schrön regards it as a morbid entity, and has described the clinical picture as ushered in by a severe chill followed by remittent fever, never dropping quite to normal in the intermissions. There may be two or three attacks of fever during the day, each possibly, but not always, followed by sweating. There is extreme weakness, the spleen is much enlarged and tender, the complexion that of subjaundice. The cough is dry at first, but later there is much expectoration. The sputum is a characteristic yellow, almost the color of a lemon, foamy, more inclined to be fluid than the sputum of ordinary pneumonia, and although it may be blood-streaked, it is never rusty. The process in the lung migrates from point to point, as evidenced by the auscultation findings. Differentiation is not difficult if the possibility of this form of pneumonia is borne in mind, but the touchstone is the great improvement under quinin. If this drug is not given the process may drag on indefinitely and even prove fatal. Improvement is rapidly observed under 8 or 10 hypodermic injections of quinin during the 24 hours, giving thus a total of 30 grains. Under this

treatment the patients recovered completely in 4 days in the 2 typical cases reported.

Norsk Magazin for Lægevidenskaben, Christiania

February, LXXI, No. 2, pp. 105-284

143 *Ambulant Treatment of Chronic Purulent Maxillary Sinusitis. (Nogle Ord om de kroniske antrumempyemer og deres ambulatoriske behandling.) R. Gording.
144 Vaccination against Cholera. P. Aaser.
145 *Seroreaction for Syphilis in Aortic Insufficiency. (Aortalinsufficiens og Wassermann's luesreaktion.) R. Krefting.
146 Ulcerative Coloproctitis Caused by *Balantidium coli*. F. Holmsen.

143. **Treatment of Empyema in the Maxillary Sinus.**—Gording describes the intranasal technic with which he was able to cure permanently a long chronic purulent process in the maxillary sinus in 21 out of 23 cases, a proportion of 91 per cent. recoveries. This was accomplished without radical intervention, merely by ambulant conservative treatment. He does not think that carious teeth can be incriminated in the etiology of the process to the extent that some accept, as otherwise the sinusitis would be more frequent; fully 70 per cent. of all the patients at the clinic in his charge have carious upper teeth while maxillary sinusitis is rare. He opens up the sinus through the nose under local anesthesia, and there is sometimes considerable hemorrhage, requiring careful tamponing. In 2 cases tardy hemorrhage occurred. The opening into the sinus must be made broad enough to allow the entire antrum to be tamponed and a thick drain introduced. The after-treatment consists in alternate tamponing with iodoform gauze, insufflation of air and lavage, the two latter less often, the course requiring from one to five months in all. The process was of many years' standing in every instance, to sixteen years in some. He does not include in this summary a number of patients who have been lost sight of since.

145. **Wassermann Reaction and Heart Disease.**—Krefting reports the autopsy findings in about a dozen cases of aortic lesions in which the Wassermann reaction was applied with a positive response in all but one case in which, while there was a pronounced history of syphilis, the patient had been taking considerable amounts of potassium iodid which might possibly explain the negative seroreaction. In another group of 8 cases of heart disease there was no reaction to the Wassermann test. One of these patients came to autopsy and nothing was found to suggest a history of either acute articular rheumatism or syphilis to explain the infectious polypous endocarditis and aortic insufficiency. His cases show that a syphilitic aortic lesion may become superposed on an old non-syphilitic cardiac lesion.

Ugeskrift for Læger, Copenhagen

January 20, LXXII, No. 3, pp. 61-86

147 *Determination of Tubercle Bacilli in Larynx Mucus. (Om Paavisning af Tuberkelbaciller i Larynxslim.) K. Lundh.

January 27, No. 4, pp. 87-114

148 *Ocular Symptoms in Exophthalmic Goiter. (Øjentilfælde som Udslag af Morb. Basedowii.) C. F. Heerfordt.

147. **Tubercle Bacillus in Mucus from Larynx.**—Lundh was able to reveal the presence of tubercle bacilli in mucus scraped from the larynx in 7 out of 66 tuberculous patients who had so little expectoration that there was no sputum for bacteriologic research. All the patients with positive findings were in the second or third stage of pulmonary tuberculosis, none in the first.

148. **Symptoms on the Part of the Eyes in Exophthalmic Goiter.**—Heerfordt discusses the exophthalmos, symptoms on the part of the lids and ocular muscles, anomalies in the lacrimal apparatus, conjunctiva and cornea, and other affections liable to occur with the disease. The exophthalmos may be unilateral, and in many cases the protrusion of the eyeball is within physiologic limits. The movements of the eyes are not impaired with exophthalmic goiter as much as with other forms of exophthalmos. The eyelids may be sluggish in their movements, especially in regard to following the movement of the eyeball downward. The absence of normal involuntary winking is also an early symptom, the patient not winking for minutes at a time and then only in a rudimentary manner. These symptoms on the part of the eyelids may appear on one or both sides. Paresis of the ocular muscles is more characteristic than mere insufficiency of convergence. Ocular paresis may develop with other motor disturbances in the course of the disease. Epiphora is frequently encountered and usually early in the disease; it may accompany exacerbation of other symptoms. It may even be the first symptom that brings the patient to the physician. Later the patient may complain of dryness of the eyes and the lacrimal secretion may be found reduced. Hyperemia in the eyeball and conjunctiva is frequent in incipient exophthalmic goiter and may return frequently later. There is no evidence to show that the disease is directly responsible for the development of cataract, myopia, restriction of the visual field, glaucomatous conditions or atrophy of the optic nerve. Becker called attention to a peculiar characteristic pulsation in the centralis retinæ artery, but no one seems to have confirmed his finding.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

A SYSTEM OF CLINICAL MEDICINE. Dealing with the Diagnosis, Prognosis and Treatment of Disease, for Students and Practitioners. By Thomas D. Savill, M.D., Physician to West End Hospital for Disease of Nervous System. Second edition revised by the author, assisted by Frederick S. Langmead, M.D., Casualty Physician to St. Mary's Hospital, and Agnes F. Savill, M.D., Casualty Physician to St. John's Hospital for Diseases of the Skin. Cloth. Price, $7. Pp. 963, with 172 illustrations. New York: Longmans, Green & Co., 1909.

DISEASES OF GENITOURINARY ORGANS, Considered from a Medical and Surgical Standpoint, Including a Description of Gonorrhea in the Female and Conditions Peculiar to the Female Urinary Organs. By Edward L. Keyes, Jr., M.D., Clinical Professor of Genitourinary Surgery, New York Polyclinic Medical School. Cloth. Price, $6. Pp. 975, with 195 illustrations. New York: D. Appleton & Co., 1910.

PREPARATORY AND AFTER TREATMENT IN OPERATIVE CASES. By Herman A. Haubold, M.D., Clinical Professor in Surgery and Demonstrator of Operative Surgery, New York University and Bellevue Hospital Medical College, New York. Cloth. Price, $6. Pp. 650, with 429 illustrations. New York: D. Appleton & Co., 1910.

NUTRITION AND DIETETICS. A Manual for Students of Medicine, for Trained Nurses, and for Dietitians in Hospitals and other Institutions. By Winfield S. Hall, M.D., Professor of Physiology, Northwestern University Medical School. Cloth. Price, $2. Pp. 315 with illustrations. New York: D. Appleton & Co., 1910.

MANUAL OF OPERATIVE SURGERY. By John F. Binnie, A.M., Professor of Surgery, Kansas State University, Kansas City. Vol. II, Vascular System, Bones and Joints, Amputations. Half morocco. Price, $3.50 net. Fourth Edition. Pp. 553 with 550 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

NEW AND NONOFFICIAL REMEDIES, 1910. Containing Descriptions of Articles which have been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association, prior to Jan. 1, 1910. Cloth. Price, 50 cents (paper, 25 cents). Pp. 256. Chicago: American Medical Association, 1910.

HANDBOOK OF THERAPY. With an Explanation of the Metric System and Tables of Metric Equivalents, Weights and Measures and Lists of Synonyms, Latin Terms, Abbreviations, Poisons and Antidotes, etc. Cloth. Price, $1.50. Pp. 421. Chicago: American Medical Association, 1910.

SERUM DIAGNOSIS OF SYPHILIS AND THE BUTYRIC ACID TEST FOR SYPHILIS. By Hideyo Noguchi, M.D., Associate Member of the Rockefeller Institute for Medical Research, New York. Cloth. Price, $2 net. Pp. 173, with 14 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

EUGENICS. The Science of Human Improvement by Better Breeding. By C. B. Davenport, Carnegie Institution of Washington, Director Department of Experimental Evolution. Cold Spring Harbor, N. Y. Cloth. Price, 50 cents net. Pp. 35. New York: Henry Holt & Co., 1910.

SCIENTIFIC LIVING FOR PROLONGING THE TERM OF HUMAN LIFE. The New Domestic Science: Cooking to Simplify Living and Retain the Life Elements in Food. By Laura Nettleton Brown. Cloth. Price, $1. Pp. 284. New York: The Health-Culture Co., 1910.

LIVING ANATOMY AND PATHOLOGY. The Diagnosis of Diseases in Early Life by the Roentgen Method. By Thomas M. Rotch, M.D., Professor of Pediatrics, Harvard University. Cloth. Price, $6. Pp. 225, with 303 illustrations. Philadelphia: J. B. Lippincott Co.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY FOR THE USE OF STUDENTS. By W. D. Halliburton, M.D., Fellow of the Royal College of Physicians. Cloth. Price, $1.50. Pp. 280 with 71 illustrations. Seventh Edition. New York: Longmans, Green & Co., 1909.

HANDBUCH DER BIOCHEMIE DES MENSCHEN UND DER TIERE. Herausgegeben von Prof. Dr. Phil. et Med. Carl Oppenheimer in Berlin. Paper. Price, 5 marks. Twenty-fourth installment. Pp. 192. Jena: Verlag von Gustav Fischer, 1910.

DES HAARSCHWUNDS URSACHEN UND BEHANDLUNG. Von Dr. S. Jessner (Dr. Jessner's Dermatologische Vorträge für Praktiker, Heft 1). Paper. Price, 90 pfennige. Ed. 6. Pp. 52. Wurzburg: Curt Kabitzsch (A. Stubers Verlag), 1910.

ST. LUKE'S MEMORIAL HOSPITAL, PONCE, PORTO RICO. Second Annual Report, 1909. Paper. Pp. 33.